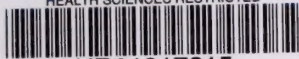


COLUMBIA LIBRARIES OFFSITE
HEALTH SCIENCES RESTRICTED



HR01917315

SERIAL

V.17

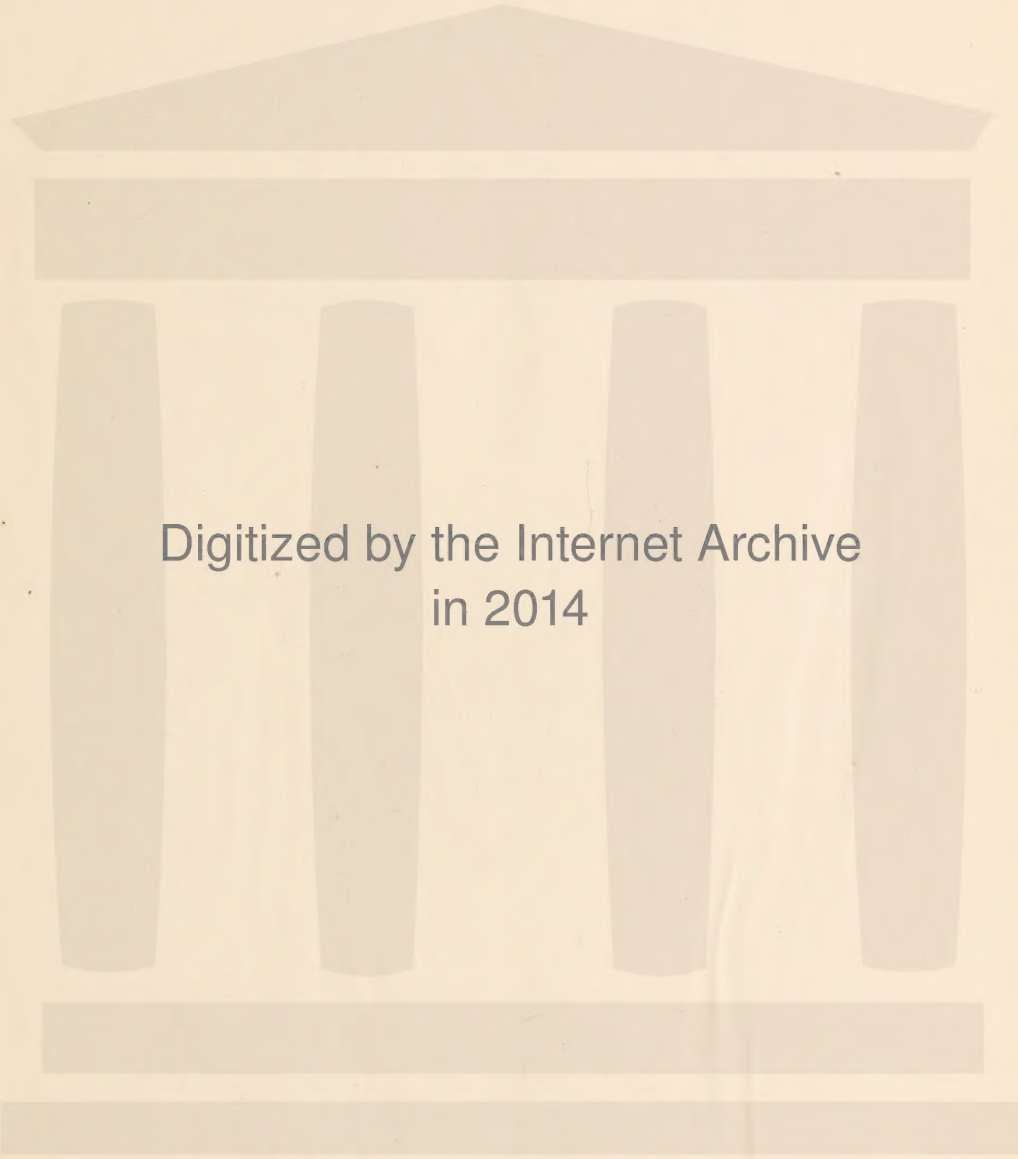
B

1903

Columbia University
in the City of New York
College of Physicians and Surgeons



Reference Library



Digitized by the Internet Archive
in 2014



THE Brooklyn Medical Journal

PUBLISHED MONTHLY

BY THE

Medical Society of the County of Kings

WILLIAM C. BRAISLIN, M.D.,
Editor in Chief.

GEORGE A. SHEPARD,
Business Manager.

Associate Editors :

JAMES McF. WINFIELD, M.D.,

WILLIAM S. HUBBARD, M.D.,

CLARENCE R. HYDE, M.D.

VOLUME XVII

JANUARY-DECEMBER, 1903

MEDICAL SOCIETY OF THE COUNTY OF KINGS
BROOKLYN, N. Y.



BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, JANUARY, 1903

No. 1

ORIGINAL ARTICLES.

REMARKS UPON SOME OF THE RECENT CONTRIBUTIONS TO OBSTETRIC THERAPEUTICS.

BY CHARLES JEWETT, M.D.,

Professor of Gynecology and Obstetrics, Long Island College Hospital.

Read by invitation before the American Therapeutic Association, May, 1902, in New York.

Most departments of therapeutics deal solely with disease. Childbirth most frequently is a physiological process. It would seem to afford, therefore, a more limited field for therapeutic discovery than other departments of practical medicine. Yet the obstetric art is far from being non-progressive. Each year its resources are enriched by new and valuable acquisitions.

In the limited time allotted I can refer to a few only of the recent proposals in obstetric therapeutics, and those but briefly.

One theme always prolific of discussion is:

Eclampsia.—The recent literature of obstetrics abounds in contributions to the study of eclampsia, but the precise nature of this affection still remains unsettled. That, as a rule, it is primarily an autointoxication of other than renal origin there can be little doubt. Whether the fault lies most in the fetal or the maternal metabolism is yet to be determined. The doctrine of infection, the theory of hepatic insufficiency and more recently the relation of the thyroid secretion to the crippled elimination, and even the possible influence of the placenta upon the products of metabolism are among the claimants for consideration.

Regardless of the nature and origin of the toxic condition the objects of treatment are essentially three:

1. To limit the action of the poison.
2. To promote its elimination.
3. To limit its production.

While our therapeutic resources are for the most part the familiar ones of former years, something has been added and much has been done to enhance the efficiency of long-tried measures. One of the most notable recent contributions to the therapy of eclampsia is that of V. V. Stroganoff (Vratch, Sept. 16, 1900). In a series of 92 cases, but five were lost and three of

these were moribund when they came under Stroganoff's observation. The distinctive feature of his treatment is the control of the nervous system by means of morphin and chloral. One-sixth grain morphin hydrochlorate is administered hypodermically on the occurrence of a convulsion and the drug is repeated in smaller doses p.r.n. Two hours later, 30 to 45 grains of chloral hydrate in aqueous solution are thrown into the bowel. The latter is repeated in smaller quantities at intervals of four to eight hours, as required. A very moderate degree of narcosis is maintained by the use of these two drugs for 24 or 48 hours. All violent measures for provoking the action of skin, bowels and kidneys are withheld. Chloroform is used very little, blood-letting not at all. Peripheral irritation is as far as possible avoided, and cardiac depression is combated. Yet operative delivery is sometimes practised.

F. S. Newell, of Boston (*Boston Med. and Surg. Journ.*, Feb. 20, 1902), has reported satisfactory results from this plan of treatment, though falling short of the claims of Stroganoff.

Morphin, which in this country is generally looked upon with distrust, is a favorable measure with many English practitioners.

Among its champions, too, are such well-known German authorities as Olshausen, Fehling, Veit, Dienst and many others.

It would seem that the drug is deserving of more attention in the treatment of eclampsia than is now given it by American obstetricians. Carefully recorded observations of clinical experience with this agent in small doses of one-fourth to one-sixth grain, would be profitable contributions to the therapy of eclampsia.

There is a possible danger for the child in the too free use of morphin before delivery, and it is positively contraindicated in the comatose form of the eclamptic state.

My personal experience with morphin in eclampsia is limited to its very moderate use in conjunction with veratrum and for the purpose of controlling the unpleasant effects of the latter drug. I have observed none but good results from it when given in that manner.

Most relied on as anti-eclamptics are chloroform, chloral, trinitrin and veratrum viride. Chloroform is universally conceded to be a dan-

gerous agent. Well nigh indispensable for quick effects in emergencies, and especially during operative delivery, all authority unites in condemning its prolonged use. *Veratrum viride* and *trinitrin* are about equally in favor. In the writer's experience *veratrum* is more efficient than *trinitrin*. The practitioner who begins the treatment early with a subcutaneous dose of 15 to 20 minims of Squibb's fluid extract, or of Norwood's tincture, and holds the circulation well under its influence by smaller repeated doses, as required, cannot fail to recognize its value. Its use need not be wholly restricted to high vascular tension.

Of eliminative organs, the most important is the kidney. The most prompt and effective diuretic measure is the introduction of large quantities of water directly or indirectly into the circulation.

Jardine, of Glasgow (*Brit. Med. Journ.*, May 26, 1900), adds a diuretic salt to the infusion. His solution consists of sodic chlorid and sodic acetate, one drachm of each to the pint of sterilized water, or of sodic chlorid and potassic carbonate in similar strength. Two or three pints are used and repeated as required. Either the intravenous or the subcutaneous route may be chosen, or the solution may be injected into the bowel. Not only the volume of urine, but also the total daily quantity of urinary solids is increased.

The post mammary injection is at once so simple, speedy and safe and so easily available that for the writer it has almost wholly replaced the intravenous method. If not promptly effective it soon becomes so under cardiac stimulation. With the usually recognized limitations saline infusions are of the greatest value in the treatment of eclampsia.

Jorgens reports good results in eclampsia treated by injections of potassic iodid into the breasts.

Saline catharsis is universally practised.

C. M. Green (*Am. Gyn. and Obstet. Journ.*, Jan.-Feb., 1901), in addition to usual diaphoretic measures, immerses the patient in water as hot as can be borne till profuse perspiration is established, the heart, meantime, being supported by stimulants, if required. This can scarcely be adopted as a safe routine measure in view of the extreme peripheral irritation involved.

Killebrew, Olshausen, Fehling, Wyder, Goeckede and others advocate the abstraction of 12 to 25 ounces of blood immediately followed by injection into the veins of normal salt solution in two or three times the volume of blood taken. It is more than probable that the good results of

this treatment are due more to the effect of the saline solution than to the blood letting.

Blood letting is doubtless best reserved for cases of deep cyanosis with extreme vascular tension. Its action is to be explained by its effect in diminishing the blood pressure, rather than the removal of toxins, as Schatz has observed. It can scarcely appeal to the rational practitioner as a routine measure for lessening the intoxication.

Inhalations of oxygen for relieving cyanosis are useful.

In a paper read before the Edinburg Obstetric Society (*Brit. Med. Journ.*, June 22, 1901), Dr. H. Oliphant Nicholson assumes that toxæmia exists in every pregnancy as the result of fetal metabolism. The toxins differ in kind and amount in different instances and in exceptional cases are produced in great abundance. So long as the kidneys are active no evil effects are observed. Toxic symptoms are immediately apparent when the urine is much diminished. Special importance is attached to the relation of impaired function of the thyroid to the mechanism which arrests the renal secretion. The thyroid gland, he believes, exerts an important influence in modifying and destroying proteids. Lange is cited to the effect that out of 25 pregnancies in which the usual hypertrophy of the thyroid gland was not present, 20 had albuminuria. In those in whom the usual physiological enlargement of the thyroid was observed during pregnancy the administration of large doses of thyroïdin was followed by marked reduction in the size of the gland, and a decided diuretic effect was noted. In thyroid inadequacy the excretion of urea is diminished and the hepatic functions also are impaired. Accordingly, Nicholson advises the use of thyroid extract in the treatment of the pre-eclamptic state and even during the convulsions. He recommends five-grain doses twice daily for the prophylactic treatment and the injection of 10 minims of liquor thyroidei every one or two hours as a remedial measure. The fresh juice of sheep's thyroid in doses of 10 minims, he regards as still more active than the extract.

He suggests that the well-known favorable action of potassic iodid in the treatment of eclampsia may be due to its effect upon the thyroid secretion.

Finally, Dr. N. concludes that by the combined use of morphin and thyroïdin it is possible to relax the arterial spasm, to arrest for the time general metabolism, and by supplying artificial iodothyron to combat symptoms due to its de-

iciency in the blood and tissues as well as to supply iodine for elaboration of iodothyron by the thyroid gland itself.

Unfortunately for Dr. N.'s conclusions, they must be regarded as based on insufficient grounds.

On the advisability of prompt evacuation of the uterus after the onset of convulsions at or near term, there is practically no difference of opinion. The diminished mortality from eclampsia in the German clinics, which is estimated at 10 to 15 per cent., is credited by Söhlein to the uterine dilator. It is variously estimated that convulsions cease in from 50 to 80 per cent. of cases after delivery. All recognize the advantage of a reasonably speedy termination of the labor under a short chloroform narcosis.

It must not be assumed that the good results of immediate delivery lend encouragement to Cæsarean section. The statistics of the latter operation in eclampsia are not encouraging. Döderlein estimates the maternal mortality at 42 per cent. after Cæsarean section in eclampsia.

Hillman (*Monats. f. Geburts. und Gyn.*, Aug., 1899) reports 22 maternal and 23 fetal deaths in 40 cases—a mortality of 55 and 57.5 per cent. respectively.

The fact cannot be too strongly emphasized in all discussions of this subject that the best treatment of eclampsia is prevention. Under a proper supervision of pregnancy the occurrence of puerperal convulsions must be rare.

Cæsarean Section in Placenta Prævia.—Cæsarean section for placenta prævia, first suggested by Lawson Tait, has been strongly upheld by Ford, Dudley, Boyd, Zinke and Donoghue. These writers see in the Cæsarean operation a ready escape from the usual dangers of central or nearly central implantation, and they think it especially suited to cases in which the vicious insertion is complicated with primiparity, rigid cervix or a transverse presentation.

It is urged in defense of this proposal that the maternal mortality in placenta prævia under the usual obstetric methods of treatment cannot be estimated at less than 10 to 25 per cent., and that the fetal death-rate is 75 to 85 per cent.

As Lyle has well said, that treatment in vicious implantation of the placenta which is best for the mother is worst for the child. The converse is equally true. The advantage for the children in Cæsarean section, if any, must be purchased at a considerable cost of maternal lives. Yet the gain for the child must be small since in most cases the fetus is immature.

Thirty authors cited by Zinke give an average maternal mortality of 25 per cent., and a fetal death-rate of 65 per cent. in placenta prævia treated by ordinary obstetric methods. In 8 cases referred to by Zinke there were 3 maternal and 2 fetal deaths after Cæsarean section for placenta prævia, a maternal mortality of 37 per cent., and a fetal of 25 per cent. Even granting Zinke's claim, that 2 of the cases should not be counted against the operation, 17 per cent. of the mothers were lost.

Contrast these figures with the following results of treatment without abdominal section.

In 264 cases in Shauta's clinic only 6.06 per cent. of the mothers were lost, and many of these were admitted in bad condition. Fifty-four per cent. of the children died. In 50 cases of central or total placenta prævia there was a maternal mortality of 18 per cent., and a fetal of 70 per cent.

Strassmann is authority for the statement that in the Charité in Berlin, the maternal death-rate was 1.45 per cent. in placenta prævia treated by version by external manipulation, and 8.6 per cent. in cases treated by bi-polar version with slow extraction.

Lyle (*Brit. Med. Journ.*, Jan. 19, 1901) publishes 76 cases treated in the Rotunda Hospital. Four mothers were lost, but only one from hemorrhage. Two of the fatal cases were septic on admission and one died of pulmonary oedema on the 10th day.

Lomer, in 101 cases, treated by bipolar version without immediate extraction, lost less than 5 per cent. of the mothers.

Fornier (*L'Obstetrique*, Nov. 10, 1900) reports seven cases of placenta prævia treated by artificial dilatation of the cervix and podalic version in which all the mothers and four of the children were saved.

Fry, in 14 cases, saved 14 mothers and 4 of the children.

De Lee, in 25 cases, saved all the mothers.

The comparison is by no means flattering to the new proposal,* and especially if the proper value is to be placed on the lives of the mothers.

It is not reasonably to be expected that in the best of hands and under the most favorable surroundings the percentage of mothers lost under Cæsarean section upon women exhausted by hemorrhage would fall below 10 or even 20 per cent. And it is extremely seldom that the diagnosis of vicious insertion of the placenta is made before a hemorrhage of greater or less amount has occurred. Often the woman is nearly ex-

sanguinated by the first attack. Women who have lost much blood are in bad condition to resist either shock or sepsis, or even the injurious effects of the anæsthetic.

The usual obstetric methods, on the other hand, which are addressed mainly to the control of hemorrhage and which do not contemplate immediate delivery, are attended with little or no tax on the endurance of the patient.

While the Cæsarean operation may be justified in extremely rare instances, it can by no means be accepted as the "Ideal Method of Treatment in Placenta Prævia."

The writer's treatment in abnormal implantation of the placenta may be summarized as follows:

When only the edge of the placenta presents, rupture of the membranes usually suffices.

In higher degrees of vicious insertion falling short of central implantation:

1. If the cervix is not dilated to two fingers, bleeding is controlled and dilatation effected by cervical water bags.

2. After dilatation to two fingers, bipolar version is performed without immediate extraction.

In central implantation full dilatation with water bags, perforation of the placenta and bipolar version are practised.

If the child is dead or non-viable, extraction should be made as easy as possible by craniotomy.

It should be kept in mind that the object of treatment is the control of hemorrhage, not immediate delivery.

The mother's life should not be seriously imperiled in the interest of the child.

Precipitate and violent intervention of whatever kind is attended with a high maternal mortality.

Cæsarean Section and Symphyseotomy.—The results of the Cæsarean operation have improved so much within recent years that it now fairly claims the entire field in which a cutting operation is required for delivery. Symphyseotomy gained recognition at a time when Cæsarean section was attended with a frightful mortality. But the anatomic limitations of the latter operation are exceedingly narrow, scarcely exceeding 2 cm. in the conjugate, and the proper selection of cases within so narrow boundaries may tax the skill of the most expert. Cæsarean section, on the other hand, assures the extraction of the child with equal facility, certainty and prompti-

tude in all conditions requiring an incisive delivery.

Its capabilities have improved with the general improvement in abdominal surgery till its results for the mother are fully equal to those of symphyseotomy, and its fetal mortality is less than that of its competitor.

Yet symphyseotomy has the advantage that it entails less shock than peritoneal section, and that, to the patient and her friends at least, it offers a less formidable means of delivery. Restricted as its limitations have become, it is the writer's belief that it still has a place in obstetric surgery. It offers a better prospect than peritoneal section in women exhausted by prolonged labor and previous attempts at delivery, and in such conditions should be preferred if the pelvic space permits.

The fetal mortality would be much diminished if the operation were restricted to pelves with a conjugate not below 7.5 cm., 3 inches. The operator is justified in electing before labor to do a pubic section in preference to its competitor when he can be assured that the pelvic space is above the limit mentioned. Yet here the procedure to be adopted is largely a matter of individual choice.

Cancer of the Uterus.—A question which has engaged the attention of recent obstetric writers is the best time to operate in uterine cancer complicating pregnancy. Pozzi advises operation after the fourth month if the mother's life is in immediate danger, and Lequeur would defer intervention till the viable period. Bouilly opposes early operation, regarding the mother's condition as hopeless.

It would seem more rational that in the early stages of uterine cancer in pregnancy immediate operation should be done in the interest of the mother regardless of the fetus. In advanced cancerous disease the pregnancy may be allowed to continue as far as practicable in the interest of the child since the operation holds out no hope for the mother.

Occipito-Posterior Positions.—Some of the worst tragedies of the lying-in room are met with in neglected or mismanaged posterior positions of the occiput. Happily, under competent management, these are preventable. Two procedures of value for the correction of the malposition have recently been introduced. Before engagement, as a rule, forward rotation may be secured by posture. The woman kneels upon the floor with her body resting in horizontal position upon the bed or a chair. Gravity promotes falling of

the convex dorsum of the fetus toward the mother's abdomen. The advantage of this method of postural treatment is set forth in a paper by C. M. Green (*Boston Med. and Surg. Journ.*, May 25, 1899).

Rotation by forceps when the head is arrested with the occiput low down in the hollow of the sacrum is now a generally recognized procedure. Forceps may be used in this manner so long as the long axis of the blades is kept strictly in the axis of the birth canal during the entire rotation and the head is well flexed. The blades are applied to the sides of the head. The rotation is effected gradually, time being allowed for the rotation of the trunk which, moreover, may be assisted by external manipulation. Obviously the operation is easier the lower the head in the birth canal. In the writer's practice there are few more useful applications of forceps than for the correction of posterior positions. Fuller details may be found in an article by Brodhead (*Am. Journ. Obstet.*, Dec., 1900).

Medullary Narcosis.—Medullary narcosis has gained little foothold in obstetrics. Marx, its most prominent American champion, in a personal communication says, that his views with reference to spinal analgesia have undergone no material change. Yet, owing to its limited field of application he now resorts to it but seldom. In a large proportion of cases it fails in neurotic women. He finds it especially useful in prolonged first stage, since here its analgesic action may be had without prejudicial effect upon the uterine contractions. He cites the views of certain authorities to the effect that it possesses some degree of oxytocic power. Marx finds a place for it in conditions in which general anæsthetics are contraindicated.

With reference to the first indication mentioned by Dr. Marx, it must be conceded that analgesia of the degree implied in the subarachnoid use of cocaine is very seldom required in the first stage of labor. The sufferings of the patient at that period, when severe enough to justify narcotics of any kind, are more simply and safely relieved by chloral and morphin. To the latter drug Marx objects, owing to its inhibitory effect upon the uterine contractions. In the writer's experience, opium in moderate dose may act to increase the efficiency of the pains, either directly or through the good effect of a few hours' sleep.

Referring to the second indication of Dr. Marx, it is by no means proven that cocainization of the spinal cord is safer than other

methods of narcosis in the presence of chronic visceral affections. A death has recently been reported by J. Bion Bogart, in a surgical case in which medullary narcosis was preferred to ether and chloroform by reason of the conditions referred to. Dr. Bogart, after a large experience with spinal analgesia in surgical practice, expresses the belief that its dangers are too great to justify its use in ordinary obstetric practice, and that in obstetric operations ether is safer and better.

While the writer has had no personal experience with the new procedure, he can but look upon it as unnecessary and unjustifiable for mere obstetric analgesia, if not for any purpose in obstetric or general surgery.

SOME OBSERVATIONS ON PERFORATING ULCER OF THE DUODENUM.

BY JAMES P. WARBASSE, M.D.,
of New York.

Read before the Brooklyn Surgical Society, Oct. 2, 1902.

Of the large number of cases of general peritonitis which perish with their etiology unknown, it is difficult to presume how many of these have been due to perforating duodenal ulcer. The statistics from which we derive our ideas of the frequency of this lesion are based upon the operated cases, which in all probability represent but a small part of the total number. And when we come to think that these cases have sometimes been operated upon without the surgeon having discovered or suspected the real lesion, it becomes evident that the reported cases must be but an inconsiderable part of the whole number.

The peculiar feature of this lesion is this: The symptoms of perforation develop suddenly, usually in a man who has regarded himself as strong and well. The sudden onset of hypogastric pain, without any premonitory disturbance, and which can be pronounced as not due to appendicitis, is very apt, in the hands of the general practitioner, to receive such treatment as would not be justified were the lesion known to be perforating duodenal ulcer. It is for this reason, the correct diagnosis not having been made, that too many of these cases never receive the benefit of surgical treatment. I have not infrequently seen persons dying with general peritonitis to whom surgery could be of no avail; how many of such cases, which

have not come to the autopsy table, have been due to perforating duodenal ulcer, I can not surmise. This we know, that, diseases such as appendicitis, cholecystitis, salpingitis, and most of the other peritonitis-producing conditions, are now so well recognized in their early stages that they pretty generally receive surgical treatment before a general peritonitis has resulted.

Here we have to do with a disease which is often fulminating. The first symptom is local peritonitis, and the next is general peritonitis. But not until the surgeon has taught the general practitioner to recognize its characteristic signs will the number of operated cases be materially increased, and the mortality reduced. In these cases the fate of the patient depends much more upon the earliness of the recognition of the disease by the physician than upon the dexterity and skill of the surgeon. The ulcer usually occurs in men of middle life, in the front of the descending portion of the duodenum, about two inches below the pylorus.

The premonitory symptoms of perforation, if there are any, are naturally, those of duodenal ulcer. There is pain, usually referred to the epigastrium, just above or to the right of the umbilicus, coming on after eating, at the time when the stomach contents are being emptied into the duodenum. There is also tenderness over the descending portion of the duodenum; and in a large proportion of cases hemorrhage into the bowel. These constitute the three classical symptoms.

According to Perry and Shaw, in Guy's Hospital Reports in 1894, perforation occurred without previous illness in about 50 per cent. of cases. These figures about correspond to those of more recent statistics. It is probable, however, that, had an examination for the above signs been made before perforation occurred, the diagnosis could have been made in most of the cases.

Pain after eating may be absent. In the cases of perforation which I shall report there was no history of pain or hemorrhage. I have recently seen a case with Dr. O. P. Humpstone in which hemorrhage had produced so extreme an anemia as to contraindicate operation; and a case of Dr. J. B. Bogart's, in which evidently the hemorrhage and perforation had taken place under the peritoneum, as evidenced by the symptoms of perforation and the later appearance of blood under the skin in the loins.

Certain disturbances outside of the duodenum may be confused with ulcer. Appendicitis, gall-stones, and cholecystitis are the most common. I have reported a case in which gall-stones in the

gall-bladder, associated with adhesions in the duodenal region, binding the gall-bladder, duodenum, pylorus and hepatic flexure together, simulated duodenal ulcer.

Whether or no these characteristic premonitory symptoms have been present, perforation is usually signalled by a sudden, severe, sharp pain in the epigastrium or in the right hypochondrium near the umbilicus. This marks the sudden invasion of the peritoneum with gross infective material. It can be conceived that rarely the perforation may be so slow, and the opening so small, that a peritoneal exudate may plaster over the defective place in the duodenal wall, and a continuance of the peritonitis prevented. I have recently reported a case, which I operated upon for the relief of adhesions in the duodenal region, in which the duodenum was so densely covered by adhesions that their presence could be accounted for in no other way.

In most cases, however, the progress of the peritonitis is rapid, and in a few hours becomes general. The symptoms are at first those of acute peritonitis of the duodenal region; and the prostration and the facial anxiety are those of the more serious peritonitides of the upper part of the abdomen. Because of the perforation taking place to the outer side of the ascending colon, the infection is more apt to travel to the right and downwards, and for this reason simulate appendicitis.

How shall the physician know that he has to deal with a case of perforation of the duodenum? The sudden development of pain, usually in a man of middle age, referred to the duodenal region, should always suggest this lesion. This pain is quickly recognized as the pain of peritoneal irritation, by the rigidity of the overlying muscles and the associated tenderness. There may also be present the symptoms of hemorrhage. The peritoneal symptoms are more pronounced and at once more grave than those of gall-stone colic with angiocholecystitis, and more rapid in their development than those of appendicitis. The exceptions are those cases, referred to above, in which the perforation is slow and preceded by adhesions. It is to be observed, however, that in these slow cases which have been operated upon, and the cases which have most escaped the surgeon have been those which have rapidly progressed to fatal general peritonitis.

It is needless to enter into a discussion of the treatment of this condition. The first thing is to save the patient's life; and in the cases operated upon by myself the measures indicated were di-

rected to the treatment of the spreading peritonitis. Certainly, if there is an opening in the bowel it demands to be closed, either with or without a resection of the ulcer-bearing area.

The two following cases were operated upon by me in the service of Dr. Pilcher in the Methodist Episcopal Hospital:

CASE I.—J. R., æt. 65. Always well. Three days before admission to hospital he was suddenly seized with a sharp abdominal pain, particularly in the epigastric region. He vomited several times, though not freely. There was marked depression. Examination at the hospital showed the abdomen distended and tense. Both recti contracted. General abdominal tenderness. No particular point of pain. The depression was marked. Temperature 101, pulse 126, respiration 30. Immediate operation.

Median abdominal section between umbilicus and ensiform cartilage. Dark fluid and clotted blood of offensive odor escaped from every direction. Intestines were distended, congested and in places covered with lymph. The blood was removed with sponges.

This blood seemed to come from the direction of the liver, so a second incision was made along the outer border of the rectus muscle. Much dark fluid and clotted blood was sponged away from beneath the liver. The hemorrhage had stopped. A dense mass of blood-infiltrated plastic adhesions were found about the pylorus and duodenum, and adherent to the liver. Gauze packing was introduced, and the wound closed.

After operation pulse was 100 to 120. Antistreptococcic serum 20 c.c. was given. Saline enemata. Pulse 118. Died at the end of eighteen hours.

CASE II.—H. P. æt. 28. Always well. Six weeks before admission to the hospital patient had a sudden attack of dizziness and nausea, and vomited blood with intense epigastric pain. Was in bed under treatment for two weeks. Vomited every day after meals. Only a trace of blood in vomit. Stools tarry. Felt better at end of two weeks, and returned to work, at which he remained for two weeks in spite of severe epigastric pain—especially after eating. Two days before admission to the hospital, while riding in a wagon, he was seized with an extremely severe attack of lancinating epigastric pain, radiating to the back. There was no vomiting. He noticed that the abdomen was swollen and rigid. The pain continued, and he was brought to the hospital.

Examination.—Abdomen distended and tympanitic. Respiratory movements restricted. Re-

spiration 25, pulse 100 to 120, temperature 103. Abdomen everywhere tender. Muscular rigidity most marked in upper half of right rectus muscle. Tenderness most pronounced over duodenum.

Patient operated upon sixty hours after onset of acute symptoms. Abdomen opened through upper part of right rectus muscle. Bile-stained fluid escaped, coming from every direction. This was sponged away, and the gall-bladder examined and found normal, excepting for recent inflammation of its peritoneum. Bile-stained sero-pus escaped through the foramen of Winslow. This fluid continued to flow from all directions among the coils of intestines, and was sponged away until the abdomen was dry. About the duodenum was a deposit of plastic lymph, which was not disturbed. This was the only region where any lymph had been deposited. The bile-passages contained no stone, and were evidently normal. It was apparent that there had been a perforation of the duodenum near the entrance of the common duct. Gauze drain was placed down to the duodenum, and the wound closed. The recovery was without event.

There was a steady decline in temperature till at the end of twelve days it remained normal. After removal of the gauze a tube was inserted. The sinus had closed by the end of three weeks, and the patient was taking full diet without disturbance.

Discussion.

DR. WARBASSE said in conclusion that this last case returned home some three months ago, and within the last two weeks his physician had written, stating that he had had some abdominal disturbances, and from the letter he inferred that the man was suffering from symptoms due probably to adhesions about the duodenal region, and, possibly, also to his ulcer of the duodenum, which still persisted.

DR. L. S. PILCHER said that of cases of perforating ulcers of the duodenum that had come to operation in his own experience, he could recall now two, one of which would be remembered by most members of the Society as having been reported by him at a meeting of the State Medical Society some twelve years ago, in which case the perforation took place through the posterior wall of the descending part of the duodenum, and produced a pseudo diverticulum of the duodenum behind the peritoneum, and dissected its way down along the side of the vertebral column to the level of the sacro-vertebral angle, where it produced a

tumor that projected forward and became apparent, producing symptoms that caused the case to come to operation.

There was no history in that case of any discomfort during the previous years or months that suggested a duodenal origin; the operative interference in the case was disastrous; peritonitis followed rapidly the opening of this sac, which was filled with detritus from the duodenum—food, muco-pus, and bile matter—and he referred to it simply as an example of the very obscure manner in which disease in this region may have its origin and progress until a very widespread damage has been done. It may be suggestive also as an explanation of some of the chronic abdominal pains, which are never explained and which are lost finally, either in an intercurrent of some other disease, or get better by spontaneous cure.

A second case presented conditions very similar to those which Dr. Warbasse had detailed in connection with his second case. A young man, less than 30 years of age, was brought to the hospital 24 hours after having been seized with a most acute pain in the epigastric region. When received into the hospital he was in a condition of great suffering—almost of collapse—all the symptoms pointing to some perforating lesion having occurred in the upper half of the abdomen and upon the right side. As soon as arrangements could be made the abdomen was opened, and an escape of an abundant bile-stained fluid took place; and very quickly upon bringing to view the coils of intestine that presented themselves underneath the opening in the abdomen, a small round perforation in the bowel, through which was escaping material similar to that which was found free in the peritoneal cavity, was observed. This upon being drawn up into the wound was found to be in the first part of the duodenum some two inches from the pyloric orifice of the stomach. It was turned in and secured by suitable layers of Lembert sutures, the abdomen was sponged out and drains placed, but the patient steadily sank and died in a few hours after being returned to bed.

In thinking further he remembered yet another case. In a man between 40 and 50 years of age there had existed for a number of years symptoms which pointed to a lesion of the duodenum, leading finally to symptoms indicative of constriction of the duodenum, for which a gastro-enterostomy was proposed and performed. The exact condition of the duodenum was masked by the adhesions in which it was involved, so that he could not say just what the condition was. A gastro-

enterostomy was performed, and the man did well as far as that was concerned, but unfortunately at the close of the third week of his convalescence he developed a pneumonia from which he died and no post-mortem was made.

That included all of the personal experience of this class of cases which he recalled.

The general statements of the reader of the paper with regard to the frequency of ulcerative lesions of the duodenum seem to be in accord with the conclusions of other clinicians at the present time, and it seemed to him well and important that attention should be drawn more thoroughly and emphatically to the possibility of such lesions and the importance of surgical interference early in connection with them.

DR. G. R. FOWLER said that the matter before us is one of exceeding interest, perhaps not less so than that of gastric ulcer, and at this time possibly an agitation of the subject may be of greater value than that of gastric ulcer. We have come to recognize the symptoms in the main of gastric ulcer, and one may be led to suspect the occurrence of a perforating gastric ulcer much more readily, since there are symptoms leading up to this condition, which is not generally true in the case of duodenal ulcer.

As has been stated by the writer of the paper, the symptoms of perforation of duodenal ulcer come on suddenly. They are most profoundly depressing in character, collapse occurs early, and unfortunately they are more apt to occur after the ingestion of a hearty meal, and after the meal has been partly digested, when the contents of the stomach and duodenum may be poured directly into the peritoneal cavity without the previous occurrence of adhesions.

His own experience in duodenal ulcer was limited to two cases. One was that of a middle-aged man, who was admitted to the Methodist Episcopal Hospital with the symptoms of peritonitis with violent onset in the right hypochondrium. At that time there had been very little said or written about duodenal ulcer; hence the operation was largely of an exploratory character. The incision revealed the presence of bile-stained fluid, which seemed to well up from all portions of the peritoneal cavity; the man's condition was exceedingly bad when he went under the anesthetic; he became rapidly worse as the operation progressed, and to get him from the table alive there was nothing for it but to place some drainage strips in position and close the wound. He died very shortly after coming out from the anesthetic. No post-mortem was obtained.

In the second case the symptoms came on with almost precisely the same rapidity, and were of about the same character. Fortunately in this case the opening was smaller, the contents of the stomach and duodenum were not so great, and there was much less extravasation into the peritoneal cavity than in the former case. In this instance he likewise drained. He was unable to find the exact seat of the ulcer, although the intestinal contents seemed to come from the posterior portion of the duodenum close down to the point where the peritoneum laps over the gut. In this case the patient's symptoms were such as to indicate drainage only. After a few days, the patient having rallied from the first effects, cautious attempts were made to feed the patient. Sterilized milk was given by the stomach; the escape of which through the wound showed that the diagnosis made on the operating table was correct. These attempts at stomach feeding were abandoned and rectal feeding resorted to. In the course of the following week it became evident that the man was losing ground rapidly; the rectal nutrient enemata failed to sustain him, and it was finally determined to perform a gastro-jejunosomy with circumclusion of the duodenum above the point of ulcer, so as to imitate as nearly as possible the conditions existing in carcinoma of the stomach with occlusion of the pylorus, in which gastro-enterostomy is quite successful as a palliative measure. This was done, and for a time he was led to believe that it would be successful; the discharge from the original incision diminished considerably and hope was held out that there would be a final successful issue. But in the course of the following week, the patient, continuing to have symptoms of profound sepsis, which had been present almost from the commencement, in spite of everything which was done for him, sank and died from this cause. The autopsy revealed the fact that the ulcer was located near Vattu's ampulla. The gastro-jejunosomy was doing its work, and the circumclusion of the duodenum had accomplished its purpose in preventing the passage of food from the stomach into the duodenum. The drainage from the point of the original incision had been apparently good, so that nothing was found to account directly for his death, except the profound septic condition from which he was suffering, and which seemed to have its origin in the incision in the abdominal wall.

These two cases are very instructive, the last particularly so, because it suggests the application further of gastro-enterostomy and duodenal oc-

clusion in those cases where it may be impracticable or impossible to close the duodenal ulcer.

DR. J. B. BOGART said that the only case of ulcer of the duodenum that had come under his care, if it were a case of ulcer of the duodenum, recovered, and recovered because the condition of the patient when brought to operation was too low to permit of any surgical measures. When the speaker saw the patient—a middle-aged woman—he found her suffering very great pain, which she referred to the epigastric region. Her pulse was good; she was moaning and restless; and after a few general inquiries she was given a hypodermic of one-quarter grain morphine for the relief of pain. She did not at that time seem to be particularly tender anywhere, and, her general condition was good. He left her with the expectation that she would soon be relieved, and that the condition was one of simple gastralgia.

He saw her the next day and found that she had had a good deal of pain all night, and was in so much pain then that he repeated the hypodermic of morphine. She was a very restless and nervous woman, and her attendants told him that she had been in the habit of taking a certain amount of morphine; in fact, they thought she had the morphine habit to a moderate extent. He noticed that her pulse was not as good as it had been, which might be explained by the fact that she had been vomiting, was very irritable and was altogether a difficult patient to control. He did not suspect anything very serious. He made efforts to move her bowels, which were successful; and the next day it was noticeable that she was not so well. The pulse had increased in frequency, and there was abdominal tenderness and some fever, which had been absent altogether for the first twenty-four hours. He made arrangements for her removal to the hospital and had her taken there that night, and preparations made for operation on the following morning, early. In the meantime, a leucocyte count showed 18,000 to the c.m.m. However, the patient's condition by that time, in spite of general stimulation, was such as to preclude any reasonable possibility of her taking an anesthetic, and he was reluctantly obliged to leave her alone. By the next twenty-four hours her condition was slightly improved, and she went on from that and made a gradual recovery.

A part of the treatment consisted of submammary saline injection. She developed subsequent ecchymoses in the lumbar region on both sides. This was the case that Dr. Warbasse referred to in his paper. The symptoms, altogether, were so

puzzling that the speaker was glad to avail himself of the counsel of Drs. Pilcher and Warbasse as to her condition. By the way, the blood corpuscles were considerably diminished and the presence of the temperature (about 2° above normal), running along pretty evenly, with the history, served to indicate that she had had a hemorrhage. The tenderness which had been most marked in the epigastric region, but which had been more or less general, subsided. After the third day she developed a hypostatic pneumonia, and again he despaired of her life, but she recovered from that, and is in apparent good health.

Some question arose at the time as to where the ecchymoses came from. It was thought it might be due to the saline injection, and if it was a hemorrhage from a duodenal ulcer, one would scarcely have looked for it in both flanks, for it certainly was there. The patient having recovered, did not give the same opportunity that these gentlemen have had to prove the diagnosis. If this was not a duodenal ulcer, but hemorrhage, then the speaker was still in the dark as to what was the matter with the patient.

DR. J. P. WARBASSE said that his attention was directed to this subject in instituting a study of adhesions in the duodenal region. He thought when we come more carefully to look into this question of perforating ulcer of the duodenum, that we shall separate the cases into three divisions:

1. Those which perforate at once into the peritoneum, rapidly and without limiting adhesions, and give rise immediately to local peritonitis; and, unless headed off by operation, to a general peritonitis.

2. The class which perforates slowly, *i.e.*, cases in which the perforation is preceded by a plastic deposit; so that the infection is limited by adhesions and plastic exudate.

3. Those cases in which the perforation occurs posterior to the peritoneum.

He thus divided cases into these three distinct and separate classes, each giving rise to its peculiar and characteristic symptom. When we come to study these cases this way we shall be able to reach a more satisfactory understanding of their course, prognosis, diagnosis, and treatment.

Lowest and Highest Mortality.—Guatemala, with a mortality of 41 in 1,000, is said to be the least healthful country in the world; while New Zealand has the lowest death-rate, 11 in 1,000.

PAINFUL AND PROTRACTED FIRST STAGE OF LABOR.

W. L. CHAPMAN, M.D.,

Demonstrator of Anatomy, L. I. C. H.

AND

L. N. FOOTE, A.M., M.D.,

Instructor in Laboratory Diagnosis, L. I. C. H.

Read before the Medical Society of the County of Kings,
November 18, 1902.

In considering the subject of painful and protracted first stage of labor, the question naturally arises as to what constitutes a painful, and what a protracted first stage. No set rule can be followed in these cases, and the time limits of Spiegelberg, Hecker and Ahlfeld are of little practical value. It must remain a matter of judgment in each individual case. Still, for practical purposes, we may define these cases as follows:

A painful first stage is one in which the amount of suffering is out of proportion to the progress of the labor, or one in which the pains are so severe or of such a character that they impede the progress of the labor by inhibiting the action of the uterus.

A protracted first stage is one which is continuing beyond the strength limits of the patient. In defining it thus, we do not mean to include cases which have already reached a condition of exhaustion, but cases in which the labor is not progressive and if allowed to continue unaltered, will exhaust the patient and render her unfit for surgical procedures which may be necessary later on.

Viewing the subject in this manner, we may now briefly consider some of the causes which produce a painful or protracted first stage of labor. These may be briefly and conveniently considered under two classes, *vis.* mechanical and neurotic.

MECHANICAL CAUSES.

Among the mechanical causes we may mention, rigid os, mal positions, over distention of the uterus, contracted pelvis, adherent membranes or placenta previa, displacements of the uterus, new growths of the uterus or adnexa, adhesions of surrounding structures due to inflammatory conditions, defects in the muscular structure of the uterus or imperfect development, distended bladder or rectum.

Most of the mechanical causes are comparatively easy to determine with the exception of defect-

ive musculature. This condition is frequently difficult to differentiate from a defective innervation. The mechanical causes should be sought for first in order, either that they may be excluded or proper operative procedures immediately undertaken.

The various surgical methods of overcoming mechanical causes are well known, and it is needless to review them here. The point we wish to make in this connection is, that as soon as the diagnosis of a mechanically retarded labor is made, surgical means should be resorted to. It is quite useless to administer drugs in these cases either for the purpose of promoting dilatation or stimulating uterine contractions, and the latter may prove harmful. With this brief reference, the mechanical causes may be disposed of as it is the intention of this paper to deal chiefly with the neurotic causes.

The neurotic causes may be considered under three classes—mental impressions, general neurasthenia or hyperesthesia, and defective innervation.

MENTAL IMPRESSIONS.

Mental impressions play an important rôle in nearly all labors and more especially so in primiparæ. The three principal mental impressions which retard a labor are fear, annoyance and shame.

Nearly every woman approaches term with feelings of dread and innumerable fears. If the labor be prolonged the fears increase and these in turn retard the labor. Each tends to aggravate the other and both are exhausting to the patient. All are familiar with the effects of mental impressions upon the labor pains. The entering of the physician, an objectionable person present, a careless remark, the remembrance of some friend who has passed through a severe labor, or some incident so slight, perhaps, as to escape the physician's notice, may cause the pains either to cease entirely or become irregular, or excessively painful.

The treatment of these mental impressions is mainly moral and consists in removing the cause of these depressing emotions. The first step in this direction is to secure the confidence of the patient. This is largely a matter of personality on the part of the physician. His manner should be easy and self-reliant. A few formal questions as to the frequency, severity and duration of the pains, and then proceed promptly to an examination. The examination should be gentle but thorough, at the same time guarding against any

undue exposure or careless remarks. At the end of the examination, the patient should be confidently informed that everything is all right, and that she will not be long.

If it is found that there is no mechanical obstruction but an irregularity in the labor due to some nervous impulse, a few moments' conversation with the patient, at the same time closely observing her facial expression, will usually lead us in the direction of the cause. As a rule, in mentally inhibited labors, the action of the uterus ceases entirely while the patient is suffering from the impression, and as soon as the inhibitory impulse is removed, the uterus regains its normal rhythm.

The fear is overcome by gaining the confidence of the patient. The cause for any annoyance should be sought, and if possible, removed. Frequent examinations are a source of annoyance and should be avoided. The shame is overcome by care not to expose the patient nor make any careless remark.

GENERAL NEURASTHENIA.

Under the head of general neurasthenia, we may class the cases in which the suffering is out of proportion to the progress of the labor. These cases neither exhibit mental impressions nor have a defective nerve supply to the uterus. The condition is simply one of hyperesthesia which produces in the patient an intolerance to pain. In these cases the pains are usually regular, and though feeble in force, are rhythmical. Still, at times, the patient may reach such an hysterical condition that the pains are completely suspended. While the first stage is nagging and tedious, and the suffering excessive to the progress of the labor, still the os. does slowly dilate.

The character of the pains and the progress of the labor, together, form an important guide to the diagnosis of this condition. This is the class of cases in which medicinal agents are indicated.

Of the medicinal agents, the most useful is morphine. It should be given in full doses and preferably by hypodermatic injection. It does not act so well when administered by the mouth, for in these painful labors the action of the stomach is retarded and absorption takes place slowly. The tolerance for morphine in these cases is greatly increased, and it should be given in large enough doses to secure its quieting effects upon the nervous system. Small doses often prove useless, for in them we obtain only its stimulating

effect which aggravates the existing condition by increasing cerebral activity and heightening the imagination.

The use of morphine in sufficient doses to produce sleep or drowsiness does not retard labor. Contraction and retraction continue although the patient may be unconscious of them. If the administration of the morphine does not result in sleep but simply relieves the acute pains, the patient will often refer to a feeling of distress in the pelvis or a sense of tightness in the epigastrium. By careful observation, it may be determined that these, more or less, indefinite sensations are due to uterine contractions. After administering a full dose of morphine, it is common to see a patient drop off to sleep for an hour or two and upon awakening, complete the labor with a few strong contractions. On the other hand, the patient may not fall asleep, but the morphine so change the character of the pains, that a rapid labor follows. It is not a rare experience, after administering a dose of morphine to a nagging case, and then leaving it for a short time, to return and find the child born.

These rapid labors, following the use of morphine have generally been attributed to its relaxing effect upon the soft parts of the pelvis and to the renewed strength gained by the sleep. True, it does produce these beneficial effects, but it also produces other effects equally important. It removes the inhibitory influences of pain and allows the accelerator impulses to predominate, thus promoting contraction and retraction. Morphine also acts as a stimulant to the medulla in which the center presiding over labor is located. Some caution however should be exercised in the use of morphine. While its tolerance during labor is greatly increased, with the emptying of the uterus, this tolerance suddenly ceases.

Probably the most popular remedy in the treatment of protracted first stage of labor is chloral hydrate. It is generally administered in 15 grain doses, repeated every half hour until three doses have been given. Taken in this manner, it lessens the general nervous excitement, and promotes dilatation of the os. Frequently it produces sleep and thus aids in preserving the strength of the patient. There are some objections however to its use. The amount of chloral required to obtain beneficial results in labor produces other effects not altogether desirable. When administered in the above doses, it is a cardiac depressant. It promotes dilatation by increasing the edema of the parts due to lowered arterial tension with consequent increased transudation of serum. Chloral

in large doses, not only causes cardiac depression and lowered arterial tension but it also reduces the body temperature and thus increases the danger to the patient from exposure to cold.

The popularity which cocaine once possessed is now rapidly waning. It may be administered either by local application to the cervix or by sub-arachnoid injection. The local application of a 10-per-cent. solution to the cervix relieves pain and promotes rapid dilatation, but its use necessitates manipulations within the vagina and thereby increases the dangers of septic infection.

In regard to spinal analgesia, we cannot speak from a personal experience in its use, but after a careful analysis of the literature upon the subject, we have been led to feel that the advantages derived from it do not warrant the dangers attending its use. It does relieve pain but this end may be accomplished by safer methods. Besides this, it destroys the accessory forces in the second stage by removing the reflex stimuli due to pressure upon the pelvic floor.

Chloroform, as a rule, should be withheld in the first stage of labor unless operative procedures are anticipated. There are certain cases however in which the suffering reaches such a degree of intensity that immediate relief seems imperative. Under these circumstances, we possess no agent so rapid and effective as chloroform.

DEFECTIVE INNERVATION.

There is a class of labors in which the uterus is unable to properly perform its functions, owing to pathological conditions in the course of the nerve fibers which are intended to supply this organ. This classification is made in order to distinguish these cases from labors which are retarded by inhibitory impulses derived from the central nervous system. Such a condition may be produced by inflammatory adhesions or new growths involving the nerve trunks or producing pressure upon them. This constriction or pressure upon a nerve, produces in its fibers a state of constant irritability, or if the adhesions or growth be well organized and of long standing, there may result an atrophy or degenerative changes in the nerve trunks. In this way the functions of the nerve are either impaired or destroyed. When we consider the complex nerve supply to the uterus, the numerous sources from which the nerve trunks are derived and the frequency of pathological changes in the pelvic and adjoining viscera, it can be readily understood why these cases are not of rare occurrence.

The diagnosis of this condition may usually be made from the character of the pains, the progress of the labor and the menstrual history previous to the pregnancy. The differentiation between protracted labors due to mental impressions, general neurasthenia and defective innervation, is based mainly upon these three points.

In mentally inhibited labors the pains are apt to cease entirely while the impression exists, and upon its removal resume their natural rhythm.

In general neurasthenia, while the pains are accompanied by an undue amount of suffering, they are usually regular though feeble in contractile force.

In defective innervation the pains are irregular and spasmodic. Their onset is sudden, the maximum intensity is reached almost instantly and the pain ceases suddenly. The pains follow each other in rapid succession for a variable time and are then followed by a period of comparative rest; that is, a period in which there are no contractile pains, but there usually remains a dull pain in the back or a dragging sensation in the pelvis.

In mental impressions and general neurasthenia, while the labor is tedious and exhaustive in character, it is progressive. The os *does dilate* though slowly.

In defective innervation, the os remains practically undilated. The process of retraction is lost and there is nothing to gather in the slack in the uterine walls and thus stretch the os over the presenting part, as we have pointed out in a previous paper (BROOKLYN MEDICAL JOURNAL, December, 1901).

The menstrual history previous to pregnancy is an important guide, and should be inquired into in all labors. In general neurasthenia, there may be disturbances at the menstrual period. It may be accompanied by hysterical attacks and exaggerated symptoms, such as severe pain and dragging in the pelvis. It may be scanty due to an anemia accompanying the neurasthenia, but as a rule it occurs at regular intervals. In defective innervation, the history is generally one of painful, profuse and irregular menstruation, irregularity constituting the chief feature.

It is sometimes difficult, if not impossible, to differentiate these cases of defective innervation from imperfect conditions of the muscular structure of the uterus. The diagnosis between the two is not a matter of great importance. Clinically the conditions are identical. No matter how well a muscle may be developed, if its nerve supply be defective, the power of that muscle is impaired.

If the diagnosis cannot be made from the character of the pains, the progress of the labor and the menstrual history previous to pregnancy, we may clear up the diagnosis by administering a full dose of morphine. If the case be one of the general neurasthenic type, the morphine will relieve the suffering and promote the progress of the labor by hastening dilatation. In defective innervation, the morphine will afford temporary relief to the suffering but will not affect the progress of the labor.

It is important that the nerve elements which are retarding a labor should be differentiated in order that prompt and intelligent treatment may be administered.

The cases suffering from mental impressions and general neurasthenia may be relieved by moral and medicinal treatment, whereas, in those due to defective innervation, the uterus is unable to empty itself and must be emptied by mechanical or surgical means. It is useless to administer drugs in these cases and operative interference should be resorted to before the patient becomes exhausted.

In conclusion:

1. Cases of painful and protracted labor are defined from conditions presented without regard to time limits.

2. The etiology embraces mechanical and neurotic causes. The mechanical causes and their management are well understood and should be sought for first, in order, either that they may be excluded or the cases placed immediately under proper treatment.

3. The neurotic causes are divided into three classes, *viz.*: (a) Those due to mental impressions; (b) general neurasthenia or hyperesthesia; (c) defective innervation.

4. The differential diagnosis in these neurotic cases is based mainly upon the character of the pains, the progress of the labor, and the previous menstrual history.

5. The treatment, according to the cause, should be moral, medicinal or operative.

Discussion.

DR. CHARLES JEWETT: The term protracted labor I assume should be applied to labor prolonged by reason of failure of the expelling powers, and should not include obstructed labor.

Two important causes of tardy dilatation which I think were not mentioned in the paper are, full bladder and full rectum. They may give rise to

trouble by inhibiting uterine contractions in any stage of labor, and even in the puerperium.

A rigid cervix unless it contains scar tissue I do not regard as a cause of slow first stage. As a rule it is rather the result of inefficient contractions of the upper uterine segment.

Generally the first stage of labor need not be considered abnormally slow so long as the woman's pulse is well below 100 and she is able to take sufficient food and sleep.

When treatment is required both chloral and opium are useful drugs—the latter is the more efficient. They must, of course, be used with judgment. Of surgical measures, and these are rarely called for, we now have several instrumental devices which may be used when manual dilatation is difficult. The four-pronged Bossi dilator, which has recently become so popular on the Continent, is apparently modeled after an American invention. Dr. Coe has called my attention to a dilator contrived by Dr. H. C. Lott of North Carolina and described by him in 1892. Bossi's instrument is almost identical with Lott's. Gau of Cincinnati and Reynolds of Boston have devised uterine dilators for obstetric use.

VICIOUS PERITONEAL ADHESIONS OF THE DUODENO-HEPATIC REGION.

BY JAMES P. WARBASSE, M.D.

Read before the Medical Society of the County of Kings, November 18, 1902.

The results of peritonitis of the pelvic and right iliac regions have been well studied and are well known. The most frequent location of peritonitis, next to these, is that of the region, bounded by the duodenum, gall-bladder, liver, hepatic flexure of the colon, and pyloric end of the stomach. This may be designated as the duodeno-hepatic region. All surgeons are aware of the frequency with which adhesions are encountered in this region.

The three chief conditions which cause plastic peritoneal deposits in this region are choleangitis, cholecystitis and duodenal ulcer. To this category might be added a large number of other peritonitis-producing lesions.

The disturbances arising from these adhesions may be very variable, depending upon the location of the adhesions, and the degree of distortion in the relation of organs, which they induce. For example, adhesions between the hepatic flexure

and the gall-bladder may be depended upon to give rise to two distinct symptoms: constipation, and attacks of dragging pain in the right hypochondrium when the colon is loaded. The gall-bladder, the cystic duct, the duodenum, the pyloric end of the stomach, and the hepatic flexure of the colon, are the visceral canals which may be bound down and dragged upon and angulated or distorted to such a degree that their functions are interfered with, either by the narrowing of their lumen, or by a diminution of their mobility. The symptoms arising from these disturbances are aggravated by the ingestion of food.

A not uncommon effect of these adhesions is a partial pyloric obstruction. This is followed by the peculiar degenerative changes in the stomach wall incident to dilatation of that organ, and presents symptoms which require to be differentiated from carcinoma of the pylorus.

The writer has operated upon three cases with symptoms of pyloric obstruction, all due to such adhesions. The obstruction in these cases was such that the patients had not been able to take solid food for periods ranging from six months to four years. The adhesions were liberated, and the stomach permitted to drop back into place. After the operation all of the cases took solid food with perfect comfort.

The author is convinced that many of the intractable cases of vague stomach disturbances are the result of such adhesions. If the mechanical distortion of the alimentary canal is not corrected a long chain of chronic digestive discomforts follows.

While it is questionable as to what effect time will have on these cases, the operative experience of the writer would tend to show that surgery offers them relief.

Discussion.

DR. DICKINSON spoke for the use of the thinnest goldbeater's skin, the peritoneum of the ox, called Cargyle membrane, made by Johnson & Johnson, to prevent readhesion. It acts perfectly in animal experimentation and in pelvic operations.

DR. A. M. JUDD asked if Dr. Warbasse had made the diagnosis before operation?

DR. J. P. WARBASSE said that he had never used the membranes which prevent adhesions. Many schemes of that sort have been suggested—the Cargyle membrane mentioned by Dr. Dickinson; and Aristol was experimented with quite extensively by Dawbarn a few years

ago. However, in these cases, in his experience, he had recognized the lesion as due to an angulation or a distortion of the alimentary canal; and the adhesions were divided and the parts were permitted to drop back into their normal position. Then the patient, it must be borne in mind, is in a recumbent position on the back for three or four weeks; and during that time the new adhesions form with the parts adherent in the position in which they are left after the operation with the patient in the recumbent position; so that what benefit we may have seen in these cases in all probability has been due to that recumbent position, for certainly new adhesions do form when old adhesions are divided.

As to Dr. Judd's question: In the cases which he had reported, the first was operated upon with a questionable diagnosis—indeed without any positive diagnosis, which is a fair attitude for the surgeon to take in many abdominal cases. The second case was operated on with an uncertain diagnosis of carcinoma of the pylorus, and the third was a case, which he felt quite confident was one in which the disturbances were due to these adhesions; so in reply to Dr. Judd he could only say, that the diagnosis was made in one case.

It seemed to him that these cases are of more interest and importance to the stomach specialists than to any other class of practitioners, for adhesions such as those which he had described, may very easily be responsible for a large category of stomach disturbances, and for many of the trifling belly aches, which the physician is called upon to treat.

The Internist deals a good deal with dilatation of the stomach, and he recognizes dilatation of the stomach and its signs and symptoms; but how often does he satisfy himself as to the causes of dilatation and the reason for the degeneration of the gastric mucous membrane and the absence of hydrochloric acid in cases without malignant disease? It seemed to him that this is a subject quite new, and one which in the future will be developed far beyond our present realization.

The Blind in France.—In a report to the Ophthalmological Society, Dr. Trousseau states that the number of blind in France reaches 31,966; a proportion of 8 in 10,000. This proportion is considerably in excess of that in Denmark, Switzerland, Austria, and above all, Holland; where it is exactly 4.46 in 10,000.

The Homes of Longevity.—It has been frequently observed that the inhabitants of islands and small peninsulas attain longer life than those of continents. The Barbadoes, Greece, Madeira and the Shetlands are quoted as illustrations of the truth of this statement.

AN ADDRESS DELIVERED BEFORE THE LONG
ISLAND ALUMNI ASSOCIATION OF COL-
UMBIA UNIVERSITY, AT THE
ANNUAL DINNER, NO-
VEMBER, 19, 1902.

BY ALGERNON T. BRISTOW, M.D.

The esteem in which individuals hold individual members of our profession is, I fear, very different from the esteem of the public for the profession taken as a class. Personal affection, the recollection of personal service, of personal conflict with the powers of disease, the struggle with death himself, all these endear the doctor to his patient and to the family. Can we assert that the influence of the medical profession as a body of public teachers is commensurate with our influence as individuals? I fear not. All of you remember that some time ago we had a discussion on the subject of education, to which certain prominent members of the teaching profession were invited. They heard the opinion delivered in most temperate terms that the present system of high pressure education seemed to physicians a menace to the nervous systems of their pupils and hence likely to interfere with the healthy development of mind and body. In terms not too delicate, they replied to the audience of medical men that we should do well to mind our own business; and that the doctors were prone to make trouble for the pedagogues and did more complaining than any one else. Again, when, as a profession, we protested last winter against the governor's pet scheme of centralization as applied to the State hospitals our remonstrance was contemptuously brushed to one side and the bill went through in spite of the judgment of the men who were best qualified to judge of its expediency. You all know the fate of our petition to be relieved of taxation on our library building. The courts and the legislature assured us that we were nothing but a club; in spite of the fact that the only necessity that drove us into building was the care of our large and rapidly increasing library. Then, last winter, again when the State Society in conjunction with other medical bodies, was fighting the Osteopathic bill, it was the opinion of Judge Toney, of Kentucky, that won the day for us rather than the protests of the doctors. The legislators were willing to believe what a lawyer said of these impostors, although they raised the cry of trades unionism against the doctors. Instances like this might be multiplied. As public men we are sadly without influence in the

community. Why is it? For one reason we are not united. There are three different schools of medicine and a serious schism in the school to which all of us here to-night belong. The public who know nothing about medicine rank all the doctors together and they know that we are at strife continually. Thus, as a public body we lack homogeneity. It is true that in religion there are countless divisions. Remember, however, that the clergy, of all denominations, claim divine authority, a claim which has received the endorsement, not of hundreds of years, but rather milleniums. The priesthood date their origin to a past which is lost in the mists of a far distant antiquity. This alone gives to them the weight of long custom. Nor has the divergence of sectarianism been without its harmful influence there. What happened in the middle ages when there was but one church? Kings knelt at her portals and nations trembled at her nod. Division in the ranks of any body of public men always means loss of influence. The public say, with some reason, that if we cannot agree among ourselves our opinion on public matters is not likely to be of value because it does not bear the hall mark of authority. Expert evidence has had much to do with discrediting the profession in the minds not only of the judiciary, but also among the journalists and the people. This is to be expected. It is true that differences of opinion in intricate cases arise in law as well as medicine. One court may reverse the unanimous opinion of a lower court and the Court of Appeals has sometimes been called the court that has the last guess. This applies, however, to isolated cases. There is practical unanimity as between the courts governed as they are, by precedent. The difficulty with expert medical testimony is that lawyers are perfectly aware that no matter what the case, provided there is incentive, they can always find medical men ready to testify on either side, so that the word expert has now become a term of reproach. Of all medical men there are none who have succeeded in casting more opprobrium on the profession as a class than the so-called professional experts. No one at all familiar with the courts will deny this statement. A third reason for the lack of influence which we possess, for which at present I see no remedy is the eagerness of medical men to do all sorts of public work for nothing, so that at last the public have gotten into the habit of expecting us to give something for nothing. It is an old saying that people value a man at his own estimate. Now what is true of a unit is true of the mass, and just as

long as the present status of medical public service continues, so long will it continue to affect the standing of the medical profession. Even the salaried offices that medical men occupy are influenced by this readiness to work for a pittance. Compare the salaries of the health officer of this borough and his assistants with the incomes of the district attorney and his associates. The medical men receive hardly one-third of the amount paid to the lawyers. Do you suppose that facts like these which are well known have no influence respecting our public standing? Why should the city pay liberally the men who watch the criminal classes and protect us from crime, and dole out a pittance to the medical men who are taking care of the city's health? Largely I believe because we have belittled our services ourselves. An Irishman once said to his family physician who had called in a consultant, "That was a hell of a professor you called," and this because he had been charged a very small fee. The consultant was valued accordingly by the patient, and so it is with the public. Now I know that it is easier to point out facts such as these than to name a remedy. For the condition last named I see no present or very evident remedy unless it be the slow growth of public sentiment in favor of a change, and the ultimate management of the hospitals by the state. Our disagreements, however, are matters for us to settle. Harmony is something that is within our grasp. We cannot, it is true, bring under one fold all the schismatics in medicine, although I sincerely hope that the younger men here will live to see ultimate unity. What concerns us to-day is to mend the breach in the ranks of our particular branch of the profession. Much may be done to bring about this result by individual work. Think what division has cost the profession of this city. At present, but for our disagreement, we might to-day all meet under one roof in a building without a dollar of debt and with an endowment. It has been a costly family quarrel. We have all of us to learn the lesson of tolerance. You think your neighbor is an unpleasant fellow. It is largely, my brother, because you don't know him. Were you better acquainted you would find him companionable, nay, lovable. Alas for these miserable medical feuds! Do you suppose, my malcontent brother, that when you get to heaven the Lord of the Sky is going to give you a private compartment in which to continue a chilling isolation? There are no barbed-wire fences there, my dear friend, but rather universal charity. Scarce an hour ago I

stood on this side of that broad and sullen stream that flows between Time and Eternity and watched one of our number take passage with the silent ferryman. In vain had I tried to postpone the inevitable voyage. Slowly the bark glided from the shore and faded into the impenetrable mist. Face to face with that mystery of mysteries, how futile, how trivial seem our petty bickerings and quarrels! The voices of strife arise, are borne hither and thither on the winds and die away. "Beyond these voices, there is peace." For the present, brethren, let us strive for Unity, for a better and more personal knowledge of one another, for broader views of life and our environment, and above all else for Charity. "But the greatest of these is Charity."

ATROPIA, ITS USES AND CONTRAINDICATIONS IN OPHTHALMIC PRACTICE.

P. CHALMERS JAMESON, M.D.

Read before the Long Island Medical Society, December 2, 1902

In looking over the field of ophthalmology for a subject which might be of more general interest, I have selected that of Atropia as being a suitable one:

First, because it is the drug which is perhaps most used in every day practice in ocular troubles;

Second, it is the most valuable in ophthalmological therapeutics, if given when conditions are present which demand its use;

Third, it is the most dangerous drug in ophthalmic practice, and its use is attended by most disastrous results if used indiscriminately in certain conditions in which it is contraindicated.

It is evidently within the confines of this paper to discuss such physiological action as pertains to its use in ophthalmology, and indeed this is a necessary preface, if we would grasp the problems relative to its use and disuse in this important organ. I will not, however, trespass upon our time by reviewing the general physiological action of this drug, but we should always bear in mind that such action can always be obtained by ocular instillations of the drug to the extent of alarming toxic sequelæ. It is then a mydriatic and antispasmodic anodyne, and—this, its power to dilate the pupil, or mydriatic effect—is obtained by paralysis of the motor oculi, or the circular fibres of the iris, which contract the pupil, at the same time it stimulates the dilating or radiat-

ing fibres through the peripheral terminals of the sympathetic.

The pupils are dilated by local, or systemic use in remarkably small dosage, according to Wood $\frac{1}{10000}$ of a grain, Roosa $\frac{1}{40000}$, Ely $\frac{1}{128000}$, Trosau $\frac{1}{460000}$, Loring $\frac{1}{700000}$. It produces dryness and congestion of the mucous membrane of the throat. It sometimes produces a profuse eruption of the skin of scarlet color greatly resembling that of scarlet fever, and desquamation frequently follows, the cause being found in extreme capillary congestion. It increases intraocular tension, although in the early period of its use the ocular tension may be somewhat reduced. In small doses locally applied, it produces a direct action upon the arterial muscular coats, at first slight contraction followed by paralytic dilatation of the vessel. It has undoubtedly a most notable effect upon the mucous and salivary glands caused by action upon the peripheral nerve filaments, and this we will briefly consider when discussing its use in conjunctivitis. Now as to the solution to be used in ophthalmological practice, of course the strength of the solution is relative to the special need of the condition present. For average use in this country a two-grain solution is commonly employed. Fuchs states that atropia in four-grain solutions is the most desirable. It should be borne in mind, especially in children, that the conjunctiva, nasal duct, nose and throat and mouth expose a large surface for absorption. An instillation of a two-grain solution in each eye four times daily is relatively $\frac{1}{30}$ of a gr. per day. The same of a four-grain solution given four times daily $\frac{1}{15}$ of a gr. per day. This computation is based, of course, on the supposition that one drop of the instillation is retained, which is likely, considering the manner of administration by the patient or attendant. A sixteen-grain solution is possibly the strongest solution that can be used with safety, and even this only in cases of extreme need. Personally, I have never seen a patient who did not exhibit toxic symptoms after such instillation, if care was not taken to occlude the nasal duct by pressure on the lachrymal sac, and I remember in early practice, when desiring rapid dilatation in a child of 12 years, using this solution, and in consequence my patient becoming violently delirious. Toxic symptoms, however, can be markedly obviated by preventing solutions from passing into the nose and throat, and this is accomplished by making pressure with thumb or finger upon lachrymal sac, and in the event of this having taken place, frequent gargling and washing out of the mouth will prevent symptoms

which might follow. It is wise to be sure of one's solution, and not to use an old one which has been exposed to the air by reason of a cracked bottle or leaky cork. On the whole, when rapid and active dilatation is desired, possibly it is better to use the salt in the form of a pure granule. Now for a moment we will pass to its use as directed to the ciliary region in estimating the true degree of errors of refraction, in quieting reflexes which arise from overstrain of this muscle, and especially in its influence upon reflex headaches, which may arise from the ciliary muscle's overaction.

Atropia and its derivatives in estimating errors of refraction are our most valuable mydriatics. Time will not permit of our discussing specific examples and types of cases which illustrate its efficiency. It, however, paralyzes the ciliary muscle, neutralizes any condition of spasm which may exist, and enables us thus to obtain a thorough understanding of any disturbing refractive condition. In the young, one could hardly go amiss in its use, and it should be employed in all doubtful cases, but in elderly people much prudence is needed in its use, and the reason for this will be touched upon more fully when we presently discuss its use in glaucoma. It is seldom necessary in estimating errors of refraction after 40 years of age, as accommodative relaxation is generally present, but there are certain cases even above this age in which spasm is undoubtedly present, and where it can be employed with benefit.

In cases of asthenopia, those troublesome eyes in which errors of refraction or muscular insufficiencies may or may not exist, but where a host of reflexes are present, dependent upon simple overwork of the organ, coupled with deficient general support in the way of good nerve, muscle and blood, it can be used to great advantage for varying lengths of time. The writer frequently in these cases gives the patient a 2 gr. solution to be used for two or three weeks with the requisite smoked lenses to wear while the pupil is dilated. It is given, of course, in this instance, with the object of placing the eye and accommodation completely at rest, and the patient while under its influence cannot use it even if he so desires. It is sometimes valuable in strabismus and squint in the young, especially convergent strabismus, before glasses can be worn, and also after operation for internal strabismus. Its use in these cases is directed to the modifying influence it has on the action of the internal recti. The third nerve supplies both the muscle of accommodation and the internal rectus muscle, and overstimulation of the former, such as occurs in hypermetro-

pia, produces overstimulation, and consequent overuse and contraction of the internal rectus, and this is the classical explanation of internal non-paralytic squint. Thus by relaxing the excessive accommodative effort, we remove reflex stimuli, and in this way throw less strain upon the squinting muscle.

It is undoubtedly useful in headaches which can be directly traced to reflexes arising from excessive accommodative effort with or without accompanying error of refraction, and this, of course, by reason of the accommodative relaxation it produces, but it must not be assumed that in all cases of headache followed by relief after the instillation of atropia, over ciliary excitation is always the basis of the trouble, for we must bear in mind that by its general physiological action, that of stimulation of the vaso-motor ganglia, it relieves congestive headache by direct action on the vaso-motor centres, and thus counteracts cerebral and spinal hyperemia.

The question frequently arises, is the use of atropia indicated in simple uncomplicated diseases of the conjunctiva? We know that the physiological action when directly applied is first slight contraction of the muscular coats of the arteries, which is shortly followed by paralytic dilatation, and again by its action upon the peripheral nerve filaments it retards the secretion and flow of salivary and mucous glands. From the foregoing it goes without saying that paralytic dilatation of the blood supply of a membrane whose vessels are already suffering from over-dilatation and distension, as is present in nearly all forms of conjunctivitis, is the condition least to be desired in the furtherance of its recovery; and while it may be argued that the action of this drug in lessening the secretion of overactive mucous glands might be beneficial, yet in the writer's mind this is doubtful, as stimulated secretion is one of nature's methods of flushing the conjunctival sac, and indeed the mucous glands themselves, which if their contents become stagnant, constitute the best possible nidus for bacteriological invasion, growth and propagation.

Next let us for a moment discuss its use in iritis: Atropia is our sheet anchor in iritis. First, it puts the tissues of this inflamed organ at rest; second, the contraction it produces diminishes its overloaded blood supply; and third, by dilatation of the pupil it prevents, if used in the early stages, that most lamentable condition, posterior synechia, or adhesion of iris to lens. By placing the iris at rest it diminishes the pain, adding to its own analgesic effect. By attenuating the vessels, and squeezing their

contents out, it diminishes the amount of plastic exudate, and by its third, and possibly most valuable property, it puts the iris beyond danger of a condition, that of synechia just mentioned, which if it take place, is an endless source of trouble to the patient, and indeed one which may result in ultimate ruin of the organ itself. And yet even in iritis there are sometimes contraindications to its use. In certain cases of cyclitis, inflammation of ciliary body, the iris by contraction throws its blood into the already overdistended ciliary body, and for this reason it is not well borne, and a myotic and mydriatic used alternately—say pilocarpine and homatropine—may be employed in its stead to keep the iris on the move, so to speak, alternating contraction and dilatation, and thus preventing its agglutination to the lens. And now just one word as to the influence of atropia on synechiæ which have already formed. Its efficacy in separating these adhesions after their formation is attributable to the fact that the stroma of the iris is not frequently adherent itself to the lens, but its posterior epithelium, which is more friable, and thus more easily separated, and is often to be seen remaining on the lens after success has attended our efforts. The pain which so frequently is present after the first instillations in cases of synechiæ do not contraindicate its use, as they are generally caused by the pulling and dragging of the agglutinated portions of the iris from the lens, and we should not permanently desist on this account.

Passing to the next subject of discussion, perhaps the most dread disease in ocular troubles is one which is frequently mistaken in the acute form for iritis, and of all the conditions in ophthalmology in which atropia should *not* be used, glaucoma is the most prominent. Here it acts most disastrously, generally to the utter ruin of this sensitive organ, and why? We know that while the return flow of blood and lymph has numerous modes and channels of exit, by far the most important is the so-called "Filtration Angle," which consists of that portion of the anatomy at the margin of the anterior chamber bounded by the root or base of the iris, ligamentum pectinatum, and Schlemm's canal at junction of cornea and sclera. The veins and lymph channels emptying themselves through the ligamentum pectinatum into Schlemm's canal, and thence into return circulation externally. Now in glaucoma this space or angle is already somewhat occluded, and if in addition we superimpose an additional obstruction by pushing or jamming the iris into this angle, we will further

shut off the exit of blood and lymph, and as the tension increases, the venæ vorticosæ (the laterally situated veins of the globe, which find exit in a slanting direction), are also occluded, and the eye has a poor chance of recovery if its sensitive membranes are subjected to such superimposed pressure as an instillation of atropia will produce. Therefore, when tension is present, no matter what the cause may be, atropia is markedly contraindicated. In elderly people, for this reason, atropia should be used with great circumspection as the filtration angle is apt to be reduced in space by swelling or enlargement of the lens, as well as deterioration in function, and dilatation of the pupil by atropia not infrequently precipitates an acute attack of glaucoma. Again there is a condition which gives us much trouble, viz., that of a plastic iritis in which the use of atropia in any form increases the tension and precipitates a glaucomatous attack. Here we are, somewhat in a dilemma. If we withhold atropia we get a posterior synechia, and if we use it indiscriminately we have what is equally as disastrous to the eye, the condition of glaucoma. The keenest judgment is necessitated in these cases, and each case is a factor unto itself. We may manage to bring such a case to recovery by using eserine and atropia alternately, relying upon the operation of paracentesis, or the evacuation of the contents of the anterior chamber, to reduce the tension after the use of atropia, should the tension become too high. If the inflammatory complications of the iris subside, we can perform an iridectomy, and use atropia with care to separate adhesions which have already formed. In any event these are desperate cases, and we are fortunate if we can bring about recovery.

Atropia is indicated in most diseases of the cornea, but there are marked exceptions in some ulcerative conditions. In simple uncomplicated keratitis its beneficial effect is obtained by putting an active organ, in anatomical continuity with the cornea, at rest, and this is true of other portions of the eye directly continuous with the iris. In corneal ulceration, especially if the ulceration is deep, and perforation is present, or anticipated, we have to be guided in its use by the position of the ulcer, because with the outflow of aqueous after a perforation of the cornea the iris is apt to be extruded or prolapsed through the perforation. This is difficult to replace, and is always permanently injurious to the eye, as when the ulcer heals the iris is incarcerated in the wound, the pupil is frequently occluded, and the active function of the organ impaired, unless operative pro-

cedure succeeds in restoring it. It can readily be seen that to use atropia when a perforating ulcer is imminent or exists in the neighborhood of the circumference of the cornea, is to invite prolapsus by drawing the iris into the wound, so that this, of course, forms a marked contraindication to its use, and a myotic such as eserine or pilocarpine is indicated, which lessens the danger by drawing the iris toward the pupillary center. On the other hand if the ulceration or perforation was situated centrally it would be a most valuable agent in drawing the iris away from opening.

The use of atropia is a most fertile subject for discussion, and much time could be consumed in further elaboration of interesting facts as to its physiological action and uses in ophthalmology. Time, however, will not permit, and if this brief paper has refreshed our memories as to the more important uses and contraindications of this most valuable, and one might add, of this most dangerous, drug, it has fulfilled its function.

Discussion.

Dr. Hancock said that atropia was an irritant to the conjunctiva, causing a dilatation of the vessels, and should not be used in conjunctivitis. It was used by some to determine whether an iritis was present or not. Cocaine might better be used for this purpose. A two-grain solution of atropia can produce symptoms in a child. A four-grain solution is the best strength for use in the adult. A diagnosis of iritis or conjunctivitis should be made before using atropia.

Dr. Collins mentioned a case in which glaucoma had been produced in twenty-four hours by the use of atropine. The use of atropine brings on increased tension. He also cited a case in which constitutional symptoms had been produced by using a dropper which had previously been used for atropine by another member of the family.

Dr. Hoople deprecated the careless use of atropine by the general practitioner and others and mentioned a case in which it had been used to assist in removing a foreign body from the iris. The dilatation of the pupil dislodged the foreign body, wounding the lens and resulting in cataract. He also cited a case in which the use of atropine continued for weeks had resulted in double glaucoma.

Dr. Alderton said that he thought the gargle inadequate to cleanse the nose and throat of atropine when it was being used on the eye, and thought the spray much more effective.

HISTORICAL EPITOME OF ANATOMY.

BY CHARLES B. BACON, M.D.,

Lecturer on Anatomy, Long Island College Hospital. Assistant Visiting Physician, Kings County Hospital.

Read before the Long Island Medical Society, December 2, 1902.

Every true follower of our profession realizes the necessity of the anatomical sciences as a basis for the proper study of the healing art and the prominence assigned them in modern times. Their early development was slow and the knowledge possessed by the ancients concerning the structure of the human body was very crude and superficial; indeed, it could not be otherwise, due to the then prevailing animistic ideas, they thought that spirits inhabited or controlled the body in some mysterious way. Involuntary movements, such as the pulsation of the heart and arteries, the twitching of muscles, the phenomena of respiration and bodily heat, were all considered indubitable signs of the presence of such spirits, to which were ascribed most cases of disease and disordered action. After leaving the body the spirit was thought to maintain some occult relation to it. Hence, the corporeal remains were either preserved with pious care or burned or entombed, to prevent their suffering insult or injury that might affect the career of the spirit in the other world. Associated with these superstitious ideas were others derived from horror of death. Contact with a dead body was held to be defilement, requiring long purification, and an attempt to inspect its internal structure was a sacrilege meriting the severest punishment. Dissection was, under these circumstances, impossible. The opportunities for information were indirect, animals killed either for food or sacrifice, the examination of persons severely wounded or suffering from eroding diseases, the noting of the effects of putrefaction which prevails the deeper structures, especially the bones, were the usual means employed for the investigation of the Human Body.

Among the ancient Egyptians are found some of the earliest attempts at recording anatomical data. The Ebers Papyrus, 1550 B. C., said to be the oldest complete book extant, relates to the healing art, and contains allusions to the structure of the body, but of no great value.

Contemporary with Egyptian culture was that of Chaldea and Assyria, from which the Phœnicians and Hebrews derived much. The anatomy of the Hebrews was probably derived mainly

from Chaldean, Assyrian and Egyptian sources. The heart was supposed to be the seat of understanding, courage and love; to dilate with joy, contract with sadness, harden or soften with the passions, expressions long since wholly figurative, at that time believed to be literally true.

The early writings of India contain no anatomical knowledge, except names of a few parts of the body. About 900-200 B. C., attempts were made to enumerate anatomical structures. The ancient Hindoos are said to have practised dissection, it being held lawful to pursue such investigation for scientific purposes, though under many restrictions.

It is among the Greeks that we first meet with a knowledge of anatomy that can be called scientific. Then arose the group of so-called "Natural Philosophers," at the head of whom we find Pythagoras, 584-504 B. C. To his successors are assigned some important investigations and discoveries. Empedocles, about 500 B. C., discovered the labyrinth of the ear; Alcmeon, the Eustachian tube and optic nerve; Diogenes described the great vessels 450 B. C., all after the dissection of animals. To him we owe the names Amnion and Chorion. Démocritus, 450 B. C., studied and compared the organs of man with lower animals. The physicians of the Greeks became segregated into a guild, known as the Asclepiadæ, after the God, Æsculapius, from whom they claim descent. About 430 B. C., a group of physicians of the guild arose, who pursued a more rational method. The chief of these men was the celebrated Hippocrates, often called the "Father of Medicine." Many writings ascribed to him were likely the product of his school, rather than individual effort; the anatomical data of these writings were obtained chiefly from dissection of animals, although osteology is that of man. The statements regarding the bones of the skull are fairly accurate, also those of the larger bones and joints.

It was believed that bodies of living things were composed of four elements, namely, earth, water, air and fire, proper mixtures of which produced the so-called elementary fluids. Muscles were not usually recognized from the general mass of the flesh; arteries were not distinguished from veins; nerves were confused with tendons and even sometimes with vessels. All characterizations thus far show that the ideas of the exact structure of the body were largely imaginary, and the necessity of controlling hypotheses by exact observation not being fully realized.

Aristotle, 384-323 B. C., insisted that the proper method for advancing science is to first collect all the facts or principles and afterward deduce from them causes and principles. His great activity and penetrating intelligence added great influence, not only on his own, but on the scientific thought of all subsequent ages. He may be said to have originated the science of comparative anatomy and morphology. He dissected numerous animals, giving a fairly accurate idea of their constitution. Much of his work holds good at the present day. He distinguished arteries from veins by their structure, correctly describing many of their principal branches. He considered, however, that some of the arteries carried only *pneuma*. Certain of the nerves he distinguished from tendons, supposing them to be hollowed tubes. Vessels and nerves he believed to arise from the heart which he therefore considered as the seat of movement. He seems to have been aware of the lacteals and to have supposed them to empty into the inferior vena cava and the aorta. A contemporary of Aristotle, Praxagoras, 335 B. C., appears to have been the first clearly to distinguish arteries from veins, both by structure and function. He held that arteries normally contained air during life, but when wounded blood is drawn into them from the surrounding parts. The brain, he supposed to be an appendage of the spinal cord. Under the patronage of the Ptolemies natural science flourished in Egypt during the third century, B. C., and at Alexandria a museum was founded, provided with a large body of teachers, and having students from the entire civilized world. Here dissection was publicly practised for the first time. A large number of anatomical specimens were made and a large library erected.

Herophilus, 335-280 B. C., called by Fallopius, the evangelist of anatomists, investigated the brain, which he considered to be the organ of thought and motion.

Erastratus was equally famous. He distinguished nerves of sensation from nerves of motion. He described the heart and its valves and structures of glandular organs. He named the parenchyma of glandular organs, holding that it is formed from blood vessels. He noted the induration of the liver in dropsy, thus being the first to distinguish pathological anatomy.

The rise of the Roman Empire transferred the center of activity from the Eastern cities to Rome. Among earlier Roman writers we find Celsus. He speaks decidedly as to dissection; says the examination of dead bodies is impera-

tively necessary for students, as they ought to know the structure and order of the parts.

Excelling all writers of antiquity in anatomical exactness was Claudius Galen, a physician at Rome, 131-201 A. D. He was an ardent investigator, and may be said to have been the first physiological anatomist. Many of his descriptions remain good to-day. He described for the first time the muscles of the face, larynx, tongue and most of the limbs, nearly as is now done.

The decline of the Roman Empire caused a gradual decay of intellectual culture and neglect of scientific investigation.

The credit of first establishing systematic public demonstration of anatomy belongs to Mundinas, 1176-1236, who taught at Bologna. He made a number of dissections and was the author of a work used as a text-book for 200 years. The zeal for anatomical study arose first in the Italian, and afterward in the French and German universities. At Montpellier the medical faculty obtained from the Duke a license to dissect the cadavers of criminals. It was successively continued by the kings of France, Charles VI. and Charles VIII., 1396-1496. At Prague, dissection was practised from the very foundation of the university, in 1348, and a building was given for that special purpose in 1460. At Vienna, dissection was practised as early as 1404, and became a definite part of the medical curriculum in 1433. The first anatomical act was passed in 1540, allowing a company of barbers and surgeons of London four bodies yearly for dissection. Usually the great cavities of the body were opened and a number of the organs displayed, but the freeing of muscles, vessels and nerves from the tissues seems not to have been understood. The modern methods of injection and preservation were not known.

Andrius Vesalius, born at Brussels, 1514, haunted the city cemeteries to procure bones, and early noted errors in the description of Galen and Mundinas. He afterward went to Italy, and in 1537 was appointed Professor of Anatomy at Padua. While not employed at teaching he gave his time to the composition of his great work. *De Humani Corporis Fabrica*, Liber VII., as Vesalius himself says, "It is an attempt to construct the structure of man on man himself."

From this epoch, anatomy may be said to have had its birth.

Vesalius met with many criticisms and much opposition, yet he was a scientific pioneer, and anatomy has never lost the impulse due to his efforts. Other prominent men about this time

were Eustachius and Fallopius, names associated with anatomical entities.

Passing now to the names of others who assisted in anatomical research and established much previous data, we come to Fabricius, 1537-1619, he erected an anatomical amphitheater and it was here that Harvey learned anatomy. He obtained from Fabricius the knowledge which was to result in the discovery of the circulation of the blood. In splanchnology vague ideas prevailed, the liver and spleen were thought to be potent organs for the elaboration of blood.

Harvey began to teach the new doctrine at the Royal College of Physicians in 1615, he did not publish his lectures until 1628, then appeared his anatomical treatise of the movements of the heart and blood in animals. For the first time we see doubt cast on the doctrine of spirits; says Harvey, "We spend too much time in the habit of worshipping names to the neglect of things."

This doctrine was for a time rejected, especially in Italy. Though bitterly opposed, he lived to see his view universally accepted, dying in 1657, a few years before Malpighi discovered the capillaries, and thus placed the anatomical basis of the circulation beyond doubt. About this period came the invention of the microscope; the immediate result of microscopic investigation was on the one hand to extend the knowledge of structure and on the other hand to introduce novel ideas regarding generation and the diffusion of animal life. Malpighi discovered the red corpuscles of the blood in 1665 and our knowledge of glands was greatly advanced by him. Many other anatomists added to our knowledge of this structure.

Glisson, 1597-1677, gives a description of the liver that forms the basis of our knowledge at the present day. Wirsung in 1642 discovered in man the pancreatic duct. Wharton, 1610-1673, wrote on the nature and classification of glands, and discovered the duct of the sub-maxillary gland that bears his name. Other notable men who advanced our knowledge of glandular structure were: Littré, Naboth, Bellini, Bartholin, Rivinas, Stenson, Brunner, Peyer and Pacchioni. In 1651 Harvey formulated the famous proposition that the egg is the primary stage of development for all animals. (*Omne vivum ex ovo.*)

Johann Ham, 1677, a pupil of Leeuwenhoek discovered the spermatozoa, which were accepted as true generation elements.

Thence arose two schools, the animalculists and the ovists. Considerable advances were made in the nervous system during this period. Names

prominently associated therewith were, Sylvius, Vieussens, Duverney and Willis.

The 18th century was distinguished rather for its work in elaborating and defining what had been previously discovered, than by any great advances in anatomical sciences.

The real founder of the science of general anatomy was Bichat, 1771-1802, who demonstrated the existence of the tissues of the body in a complete and definite manner. Of these tissues or tissue systems he made twenty-one, such as the cellular, osseous, fibrous, arterial, etc.

Morgagni, 1682-1771, may be said to be the founder of pathological anatomy, his name being associated with many anatomical entities. Closely associated with pathological anatomy is surgical anatomy. Among the workers in this field may be mentioned Hunter, Scarpa, Hesselbach and Gimbernat. There was at this time a great desire to obtain anatomical knowledge from the actual dissection of the human body, but the procuring of cadavers was exceedingly difficult. In 1827 the University of Edinburgh made dissection compulsory. The example was immediately followed by London, Liverpool and Dublin. In consequence of this, the demand for human cadavers was greatly increased and many were procured by surreptitious means. Grave robbing became common. The law required of medical practitioners a competent knowledge of anatomy yet it denied them the means necessary for obtaining it. The absurdity of such a position was realized by the disclosures of the trial of Burke and Hare, 1828, who had murdered persons for the purpose of selling their bodies, similar cases were those of Bishop and Williams. The result of these trials lead to a parliamentary inquiry and the passage of the "Wharburton Anatomical Act," Aug. 1, 1832, which legalized dissection under certain restrictions, the providing and turning over to the medical school the bodies of unclaimed paupers. In 1835 cellular division was first observed and in 1855 Virchow's famous maxim was formulated (*Omnis Cellula e Cellula*). The phenomena of embryology was now brought under the category of cell division, and the department of histology became elevated to a high rank affording opportunity for thousands of investigators.

Hand in hand with the investigation of the anatomical constitution and the relation of cells proceeded the development of technical methods and the discovery of the behavior of cells toward various reagents. The most significant event of the history of anatomy during the 19th century was

the publication in 1858 of the "Origin of Species," by Chas. Darwin. In osteology during the present century mention should be made of the work of John Goodsir on the structure and development of bone, the discovery of the lacunæ and the canaliculi by Purkinje, also Sharpey, Muller, Gegenbaur, Kölliker, Virchow and others. Arthrology has been advanced in precision and the mechanism of joints. Names worthy of mention in this connection are Meyer, Morris, Biglow, Dwight and Sutton. In myology, memorable names are McAllister, Bowman, Testut, Cohenheim and Krause.

The lymphatics, formerly believed to have originated from the interstitial spaces of connective tissue were shown by Recklinghausen and Ranvier, to form a closed system. The connection of the serous cavities of the body with the lymphatic system has been studied by Klein, Tournoux and Kollosoy.

Early anatomists maintained that the convolutions of the brain were arranged without definite order, being compared to the irregularities of the coils of the small intestines: careful comparative study of brains of man and animals has revealed a most constant and orderly arrangement. Associated with this field of research should be mentioned the discovery of Broca, that certain motor and sensory activities can be located in certain areas of the cerebral cortex. Names closely allied with this discovery are Fritsch, Charcot, Horseley and Ferrier.

The nerve cells in the brain and spinal cord were probably first mentioned in 1833 by Ehrenberg, later by Valentin, Purkinje and Remak. Axis cylinder processes seem to have first been noted by Wagner and Deiters. The complex make-up of the nervous system has baffled many an ardent and enthusiastic observer. Much of interest might be said and many failures and successes recorded.

The finer anatomy of the organs of special sense is almost wholly the work of the 19th century; as is also our accurate knowledge of the minute anatomy of the viscera. Time will not permit me to elaborate and mention the names of those pre-eminently known in the field of anatomical research during the past and present decade.

To-day we find perfection where hitherto chaos existed. Corroborate this by visiting our modern college of medicine, inspect its anatomical department where teacher and student together are studying the wonderful human mechanism with

all modern facilities and appliances made possible by the unceasing endeavor and attainments of our fore-workers. Anatomy to-day is an exact science affording precision and exactness to all departments of medicine and surgery.

Discussion.

DR. HOOPLE commended highly the subject of the paper as well as the manner in which the material had been presented. He thought that too little time was devoted to the history of medicine and surgery. Recently a department of history of medicine had been established in Paris, the first time that the subject has been given a place in the curriculum of any institution. He also commended highly the work of Dr. Jonathan Wright on the history of nose and throat.

A FEW SUGGESTIONS TO THE DOCTOR ON THE WITNESS STAND.

BY EVARTS L. PRENTISS, LIT.B.

Of the New York Bar.

Read before the Long Island Medical Society, December 2, 1902.

The doctor who is called to testify in a court of justice usually has in view two purposes:

First.—To aid the cause in which he has been called to testify;

Second.—To present a favorable personal and professional appearance on the witness stand.

That the witness does not meet the requirements of these considerations, in many cases, is, I am constrained to admit, quite as often the fault of the counsel who has charge of the case as it is that of the witness.

Testifying in court is an oratorical act. Its object is to convince and to persuade, and the same qualities which are of use to an orator are effective in a witness. Fine technical skill, extended professional experience, commanding presence, all contribute in no small degree to the making of a good witness; but it is the record of experience that the secret of producing persuasive oral evidence, in most cases, lies in a painstaking preparation of the witness.

"Why," you may ask, "is it necessary that a witness should be trained for the purpose of telling the simple truth?"

Did you ever hear of a Yale foot-ball captain putting on his team for a battle with Harvard a

man who had never been on a gridiron or seen a game played; one who knew nothing about the rules of the game, or their application? A player may possess the physical strength of Sandow, yet be useless as a child in a great contest, unless he knows the science of the game and has been carefully trained as to the manner of applying his strength to make it most effective.

To put a witness on the stand who has never listened to the trial of a case; who knows nothing about the rules of the game, so to speak, or the methods employed in examining witnesses, and who has no knowledge of the merits of the case in which he is to testify or what testimony of his will aid or injure the side calling him, would be quite as experimental as the introduction of a novice into a critical foot-ball contest.

The doctor who wishes both to assist the cause in which he has been called, and to make a favorable impression in the court room, should be prepared for the witness stand in advance of the trial. He should ascertain from the counsel of the side by which his attendance is required, exactly the nature of the case, and, where the seal of professional confidence is not placed upon his lips, he should disclose to the counsel all the circumstances relating to the case which are within his knowledge. The witness, in turn, should be informed by counsel of the relation of his own testimony to the facts in issue, and what facts within his knowledge are most important to be emphasized.

When a doctor is called as an expert, he should be fully informed in advance of the facts which will probably be proved upon the trial, and a tentative hypothetical question embracing those facts should then be put for his opinion. He should carefully study, before the trial, the questions involved in the opinion he is prepared to give, and he should fortify his theories by a thorough examination of all the leading medical authorities on the subject. He should also refresh his recollection of any cases in his own practice or coming under his notice, which involved similar symptoms or treatment, and be ready to describe such cases if called upon to do so.

A medical witness should never lose sight of the fact that the sole object of his testimony is to enlighten the jury; and as juries are not always selected because of their intelligence or learning, he should reduce every technical term to ordinary language, which can be understood easily by a person of common comprehension. It is better to use a general descriptive term which every juror will understand, than a more precise word which

will convey no meaning to him. A medical practitioner who has never been called as a witness, and who is not familiar with courts, could spend a leisure hour in no place more profitably than in a court room during the trial of a case, particularly one which requires the testimony of a medical expert. In that way, better than in any other, could he gain in advance, a familiarity with the usages and decorum of a court, and the manner of examining witnesses which would increase his own usefulness and add materially to his personal comfort and peace of mind, while under the ordeal of giving testimony.

When the time is come for the medical man to testify, he should be sure that he understands clearly each question as it is put to him before he attempts to answer it. In his answers he should state the facts within his knowledge which the question calls for, and nothing more. Testimony upon a trial is limited to those facts which the witness himself has actually perceived with his own senses. What he has heard another relate as having taken place he is not allowed to state, nor is he permitted to draw any opinion or conclusion from his observations, except in a case where he is testifying as an expert, and is called upon to give his own opinion upon the facts in evidence.

After the doctor has been examined by the side which has called him, he is cross-examined. His preparation for the witness stand then serves him in good stead in discerning the plans of the opposing counsel to break down his testimony. The purpose of the cross-examination is to eradicate from the minds of the jury any conviction or good impression the witness has produced on his direct examination, and in their room plant distrust and hostility. Two methods are generally pursued by advocates to effect this purpose. Under one method the cross-examiner assumes a friendly attitude towards the witness, endeavors to arouse his interest and get him to talking freely on the opinion he has advanced, and then gradually lures him into taking an extreme position which the witness cannot sustain and which will tend to discredit him with the jury. Under the other method it is the design of some cross-examiners to accomplish the destruction of a witness by provoking him to such a degree that he will utter some rash and unreasonable statement, which would involve him in a contradiction. Therefore, one of the most important qualifications a witness can possess during his cross-examination is an unruffled temper.

If the witness finds his temper rising let him

be exceedingly slow in his answers. As a rule it is unwise for a witness to volunteer any explanation of an inconsistency in his testimony. If necessary, the counsel who called him will bring out the explanation on his re-direct examination, which usually follows.

A witness should endeavor always to be calm and collected while on the witness stand, and he should face the jury while he is testifying and enunciate clearly every statement. This will save time, please the court, jury and every one else concerned.

Finally, a witness should be frank and honest with the jury and court, always. Any attempt at dissembling tends to his discredit. In the language of the oath he takes, he should tell the truth, the whole truth and nothing but the truth.

Discussion.

DR. BRUSH said that the doctor should be educated in testifying. No matter how well informed the doctor might be, to make brief and clear statements in the court room required special study and experience in this line of work. The physician should in certain cases be allowed to instruct the lawyer as well as the lawyer instruct the physician. Technical terms should never be used, but the answers given should be in the simplest language possible. The most difficult cross-examiner to meet is the one who assumes a friendly attitude to entangle the witness.

DR. CORNWALL said that he was troubled as to what reply to make to the question, Do you expect a fee if this case is successful?

DR. BRUSH said that he never made any arrangements beforehand and always so stated when the question was given him.

DR. MORRISON said that he had once been called by telephone to testify and was given no opportunity for preparation. In this instance he thought it quite possible that the verdict might have been reversed had he been given opportunity to look up the case.

Changes in the Medical Corps of the Navy, Week Ending December 20.—P.A. Surgeon T. D. Myers, retired, detached from special duty at Naval Hospital, Philadelphia, and ordered to the Navy Yard, League Island, Pa.; P.A. Surgeon E. Thompson, detached from the Montgomery, and ordered to duty with the Marines at Culebra, W. I.; P.A. Surgeon H. H. Haas, detached from duty at Culebra, and ordered to the Montgomery; Asst. Surgeon S. S. Rodman, unexpired leave revoked, and ordered to the Pensacola; Surgeon N. J. Blackwood, detached from the Alliance, and ordered to the Chicago, via steamer sailing Dec. 27; P.A. Surgeon C. DeW. Brownell, detached from the Panther and ordered to the Alliance.

PROCEEDINGS OF SOCIETIES.

THE BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, OCTOBER 2, 1902.

A. T. BRISTOW, M. D., in the Chair.

DR. J. P. WARBASSE read a paper on PERFORATING ULCER OF THE DUODENUM, for which see this issue of the BROOKLYN MEDICAL JOURNAL, page 5.

CONDYLOMA ACUMINATUM VULVÆ.

DR. L. W. PEARSON reported a case of enormous condylomata which extended from the anterior border of the anal margin alongside the vulva, to near the mons veneris. They seemed in size about the largeness of a fist on each labium. She was in the seventh month of pregnancy. These growths had developed eight or ten weeks prior. They were cauliflower in appearance, bathed in a fetid discharge, and were excoriated, tender, and painful. She was ordered antiseptic douches twice daily, followed by drying of the external parts, and dusting with astringent powders. The patient would be confined within two months, and she could not be cured by medical means within that time. The speaker, therefore, decided to operate. An elliptical incision was carried just beyond the vegetating mass; and the whole mass dissected out. At first the woman bled furiously, but as soon as the dissection was completed, the hemorrhage ceased spontaneously, save an occasional spurt.

Dr. Pearson suggested that anyone treating these large growths by this method, should entirely disregard the early hemorrhage, hastening the dissection, otherwise much blood will be lost. After complete removal, the skin was brought together by cat-gut sutures; the parts cleansed, dried, dusted with an astringent antiseptic powder. Within ten days the healing was complete. Six weeks after the operation there had been no newly developed growths. The text-books advise to excise with scissors, and cauterize the base, which means snip off the growth even with the surface of the adjacent integument. The speaker believed this measure to be inferior to that of excising the growth with its base and subsequent suturing. The former procedure leaves a raw surface in a locality subject to acrid discharges from the vagina, and infection from the

anal aperture. It is likely to entail unnecessary pain and be unduly long in healing. It is likewise unsurgical in the modern sense.

Since performing the operation above described the speaker had read in Howard Kelly's Operative Gynecology, published in 1898, a brief description of a case in which the growth was the size of a man's fist. It was excised with a cautery knife. Kelly adds that the better plan, according to present methods, is by excision with the scalpel and suture.

In the case detailed above, there was no history of gonorrhea. The speaker imputed the origin to a rather profuse vaginal discharge, which was in no wise purulent. It seems that the irritating character of the discharge, the constant moisture and friction were enough to cause the papillary hypertrophy eventuating in condylomata of the variety acuminatum.

OCCCLUSION OF CYSTIC DUCT: CHOLECYECTOMY.

DR. J. B. BOGART showed a specimen of gall-bladder removed in an effort to get rid of a persistent fistula after the usual operation for gall stones. The patient had suffered several attacks of pain and fever, and a year ago last April was submitted to operation at St. Vincent's Hospital, and remained there until July, 1901, when she left with a fistula. The fistula had persisted ever since. The incision was parallel with the free border of the ribs, and the discharge was a slight amount of viscid mucus. He made a vertical incision along the side of the fistula and exposed the gall-bladder attached to the cicatrix and excised it. The gall-bladder contained a stone of moderate size. He could not tell at the time whether it was fixed or not, but after the gall-bladder was removed and opened, he found it was loose and free. He also found that the opening between the gall-bladder and cystic duct was completely closed, and so he had the satisfaction of knowing that he had done the only operation that would close the fistula, inasmuch as whatever secretion formed in the gall-bladder must necessarily have passed out from the fistula in the skin. The patient was making an excellent recovery. The interest of the specimen is in the absence of any connection between the gall-bladder and the cystic duct.

When the occlusion took place, of course, it is impossible to say. It does not seem that the presence of this gallstone would be responsible for producing it. He thought it probably occurred before the original operation was done, as

the closure is complete and it looks as though it had existed for some time.

DR. WOOD called his attention to the fact that in order to determine whether the occlusion of the cystic duct was primary or secondary to the operation, one had only to recall whether any bile had passed through the fistula at any time after the operation.

**MEDICAL SOCIETY OF THE COUNTY OF KINGS.
SECTION ON PEDIATRICS.**

REGULAR MONTHLY MEETING, OCTOBER 10TH,
1902.

DR. JEROME WALKER in the Chair.

WILLIAM ALBERT NORTHRIDGE, M.D., Editor.

The Scientific program consisted of a paper on Pneumonia in Children by Doctor McPhail and a paper by Doctor George F. Little on Favorite Drugs and Formulæ.

DR. LITTLE said: It is scarcely my intention to-night to read what might be called a paper, but rather to start a discussion upon favorite drugs and formulæ.

There are many ways of treating disease aside from the use of drugs and with infants and children the less medicine the better, in most cases. Yet we are obliged daily to resort to the pharmacopœia and the question of what to give and how best to give it are of much importance. Probably every practitioner has certain remedies, which by their proved efficiency, have become his favorites in meeting especial indications. This field is so large that it would doubtless require a number of evenings to cover it, but even the short time allowed may prove of value in points that are practical.

It is my desire to draw out some of the ideas which I know are in the minds of those present, for in this case it is more blessed to receive than to give, and I do not appear before you as will those who come later in the evening, fountains of wisdom, to scatter pearly drops of knowledge—I come as a sponge, to absorb.

It would be, perhaps, a proper recognition to place calomel at the head of my list of favorite drugs. An old physician once epitomized the philosophy of existence in the following manner: "There are two things to look out for—here and hereafter. Read your Bible, that will do for hereafter; keep the bowels open, that will do for here."

There is much of truth in the latter statement and one of our chief duties is to constantly impress upon mothers the absolute necessity of bringing up their children in regular habits. Our fathers loved calomel and gave it in such glorious doses that the patient was often obliged to have his meals served in the toilet room.

Aside from the purgative action of the drug, I employ it daily, among infants, in cases where there is a slight disturbance of the gastro-intestinal canal. I endeavor to find the error in feeding, instruct the mother thereon and clean up the present trouble with calomel gr. $\frac{1}{10}$ four times a day. The action of the medicine in these cases makes it not only a favorite with me but with the mothers, as when indications again arise they often come asking for some more of the "little white tablets which did baby so much good."

Castor oil needs no recommendation as to its value in pediatric work. Most children take it well—where they do not the following formula is acceptable:

R Ol. ricini
Glycerinæ..... aa $\bar{3}j$
Ol. gaultheriæ..... $\bar{m} x$

M. Sig: A teaspoonful to a tablespoonful according to age. Shake well.

The addition of the oil of wintergreen and the glycerine makes the mixture very palatable and the latter assists the oil in its action.

If called upon to exhibit the sulphate of magnesia, there is usually objection from a child, not to mention an adult. The very unpleasant taste may be fairly concealed by syrup of raspberry, as

R Magnesiæ sulphat..... $\bar{3}iv$
Syr. rubi idœi..... qs. $\bar{5}ij$
Tablespoonful = $\bar{3}j$

Where there is cough due to bronchitis and not to an irritated stomach, the following, while old, is efficacious, when an expectorant is indicated:

R Ammon. chlorid..... $\bar{3}ss$
Mist. Glycyrrhizæ Co..... $\bar{5}ij$

M. Sig: Half teaspoonful to a teaspoonful every 2 or 3 hours, according to age. Shake well.

I find that the above seems preferable to most of the syrupy mixtures and like calomel it has proven itself in high favor with mothers, even the "children cry for it." Should a syrupy mixture be called for, especially one in which codeine is to be used and its taste concealed, the vehicle may well be composed of syrup of tolu 1 part, syrup of raspberry 1 part, and water 2 parts.

The results in the administration of cod liver oil, with all of us I think a great favorite, are largely dependent upon the ability of the child

to assimilate it. I have believed it wise to ordinarily use a pancreatinized emulsion—the action of the ferment so subdividing the globules of oil that there is smaller tax upon the digestive organs. That emulsion upon the market which contains also the phosphates of wheat is to my mind the best. It is so finely emulsified that it may be mixed with water, wine, or milk and with the latter may, if desirable, be given in small quantities to breast or bottle-fed infants where a less digestible preparation would be contraindicated. The addition to the mixture of the natural phosphates is of value in all cases and the preparation has given me excellent results in cases of rachitis.

Cod liver oil in combination with one of the malt solutions has a good nourishing value and through its sweet taste may be used in older children where the gustatory nerves rule the patient.

Beside having value as a mild laxative and tonic for babies, olive oil may be found of service in dysentery, in severe diarrhoea and in chronic catarrhal gastritis. In the first two indications I am accustomed to employ it when the acute symptoms are checked but there remains an irritated condition of the bowel. It is given in doses of a teaspoonful to a tablespoonful three times a day and apparently has a very soothing effect as well as tonic properties.

In any of the diseases of children where there is much loss of flesh and strength and where oils by the stomach are contraindicated, the routine practice of employing cod liver or olive oil inunctions seems desirable.

The bromides, being the mildest sedatives are justly popular with us. I am in the habit of combining the potassium, sodium and ammonium salts in equal parts. When given well diluted with vichy or seltzer, the unpleasant salty taste is disguised.

In the average case of eczema in babies, where moderate stimulation is required the following formula recommended by Starr, seems to act well:

℞ Zinci oxid. 5ij
Ungt. picis liquidæ
Ungt. aquæ rosæ aa 5ss
Lanolin 3j

At the suggestion of Dr. W. A. Northridge I have for some time been using acetanilid in pertussis. While nothing interferes to any extent with the course of the disease, this drug seems to do as much as can be expected. A half grain is given every six hours to an infant a year old

and a grain at the same intervals to children from two to eight years of age.

Upon the recommendation of Dr. T. R. French I have for several years employed the bicarbonate of sodium in acute coryza—after experimenting with it for a time it earned a place among favorite drugs. It does not appear to be of especial value after the symptoms have fully declared themselves, but it has aborted many cases when used at the development of the earliest symptom, that feeling of irritation of the nasal mucous membrane, which is easily recognizable, and which leads one to say "I fear I have taken cold." To go still further, I personally take a couple of doses of the soda and advise patients and friends to use it, when there has been exposure resulting in chilliness. The method of administration where the initial symptom has developed, is the following: For an adult, a half drachm of sodium bicarbonate in a half tumbler of vichy or water, repeated in a half hour and again after an hour—this course to be repeated after several hours' interval, doses for children to be reduced in proportion. I have noted many cases where the coryza being apparently checked has reappeared on the following day and therefore order the solution to be taken t.i.d. on the second and third day. It is well, of course, not to push the alkali during the period of stomach digestion. It will be observed that the drug is applicable only to older and more intelligent children except when it is known that the child has been exposed.

In limited area burns of the third degree the combination of orthoform with an antiseptic is of especial comfort to the patient as it relieves the pain often for twenty-four hours:

℞ Orthoform
Aristol. aa 5i
Acid boric. 5i

In this form it is dusted upon the surface; if preferable the orthoform may be applied as a 20-per-cent. ointment.

It is claimed, I believe, that the drug is non-toxic and may be applied to large surfaces, but in this direction I have not had experience.

In cases of very intense pharyngitis or tonsillitis, where swallowing becomes so painful as to interfere with proper nourishment, a child of sufficient intelligence may be allowed to dissolve in the mouth a tablet containing a quarter of a grain of orthoform ten or fifteen minutes before a meal. This formula is prepared by one of the leading tablet manufacturers.

Adrenalin chloride has certainly been a favor-

ite with many of us since its introduction. It is applicable to children where an acute coryza has developed: and controls the nasal symptoms well when used as a spray in strength of from 1:10000 to 1:7500, every two or three hours.

I shall ask your indulgence in speaking of a new drug which scarcely comes within the limits of my subject. Benzoyl-acetyl-peroxide or acetozone comes to us, I believe, from the experimental department of the University of Michigan. From such source it is worthy of our consideration, more especially as it promises to fill a niche which has hitherto been practically vacant. It is an antiseptic of great strength of which a solution may be taken internally ad libitum, for it is claimed to be without toxic effects. In fact in saturated solution, the ordinary mode of administration, it has the germicide power of 1:1000 bichloride of mercury and two or three quarts may be given in the twenty-four hours to adults. So far, experiments have been mainly confined to typhoid fever, although favorable reports have been received of its use in gonorrhea, both in the male and female, and in malignant oedema.

Sixty-eight cases of typhoid have been reported—in none of these was there a death and the consensus of opinion seems to be that there was a rapid and complete subsidence of all bowel symptoms, the odor of the stools disappearing in two or three days, and that the disease was shorn of many of its most disagreeable features.

I have tried the drug in a recent case of typhoid but, although the case ran a comparatively mild course, it was a second attack and the value of the test was therefore slight. The outlook for acetozone, if it bears out what is claimed for it, will be apparent to any mind.

It occurs to me that it might be an efficient prophylactic for those who have been exposed to typhoid infection—that it would make an excellent mouth wash and nasal spray for those in attendance upon a case of contagious disease. A matter, however, that especially interests us is, that used by mouth and in colon irrigation, what might it not do in milk infections, dysenteries and summer diarrheas?

The micro-organisms which find free boarding houses in our interiors will soon pack their grips and flee—outgoing steamships will be filled by swarms of bacilli, cocci and spirilla, emigrating to kinder and more hospitable climes. Even “the worm will turn,” that faithful companion of childhood—the tape worm. In his happy home, surrounded by a sorrowing family of segments, the head itself will turn its face to the wall, of the

intestine, and pass away. But enough! we must experiment and hope.

DISCUSSION.

DR. W. N. BELCHER: The use of favorite formulæ should be discouraged. They are all right if used by the men who originate them, but not if copied by someone else who tries to fit it to his case. This is a wrong principle. No drug should be used without a distinct indication for its use being present. While I am not an advocate of single remedies, to the exclusion of formulæ of known value, it is my belief that in the treatment of children, and by children I mean infants and those under six years of age, single remedies are to be generally preferred to complex prescriptions. Drugs should occupy ordinarily, I believe, a secondary place in the treatment of children, and should never be used unless positively indicated, and then with much care, and for definite specific purposes. It is remarkable how many children will recover from illnesses if they are only given a chance to do so, without being upset by having all sorts of medicines poured into them. In many cases a careful regulation of diet, a good laxative, local measures, and a practical use of hygienic principles and common sense will bring your patient through in good shape, and there will be complete restoration to health, independent of drug action. These measures, in my judgment, are of much more value than drugs, in the vast majority of cases. Just a word as to the use of expectorants in children. I refer, of course, to cough mixtures, syrups, etc. I believe that they do positive harm in the treatment of little children, and I fail to see how they can be of any service. In the case of older children this is not so. Expectorants may be used at times to advantage. In young children and infants there are many things of more value than expectorants. Local measures are more useful and less likely to disturb digestion and nutrition. The use of counter-irritation, the oiled-silk jacket and similar measures are to be advocated. If the cough be decided and troublesome, inhalations may be advised. If cough is associated with pain as shown by the child crying out after coughing and there are marked restlessness and lack of sleep, there should be no good reason for withholding the use of opium, in the form of Dover powder, paregoric, or codeine, with caution as to the dose and frequency of use. There has been a feeling that opium should not be given to infants and young children. I think this is a mis-

take. It is a most useful remedy, but it must be given with great care, and only where its use is absolutely indicated. It is a remedy most easily abused and most commonly. In careful hands it is useful in the treatment of children. In other hands it is a menace to life.

DR. STIVERS: Dr. Little's paper presents a number of valuable suggestions. In regard to the last named drug, acetozone, the formula of which is similar to that of peroxide of hydrogen we have much yet to find out. When it was first brought to my notice a few weeks ago, I used it in five cases of typhoid fever at the Kings County Hospital. The cases were all well along in the disease before the drug was begun so it was impossible to determine whether or not the cases had been benefitted by its use.

Since that time I have used it in one case of typhoid in private practice with apparent benefit. Although the case was severe with high temperature and active delirium, tympanites was at no time distressing, a result possibly due to the use of acetozone.

The drug is best administered in solution, fifteen grains to the quart of hot water being the strength advised. Of this solution from one to two quarts should be given daily. The solution has an acrid taste and it is sometimes difficult to get the patient to take it even when well diluted. It is non-poisonous and may be given in large quantities. I believe it is worthy of further investigation.

Dr. WM. A. NORTHRIDGE: I am heartily in sympathy with the simplicity of medication idea in treating babies.

A remedy should be given to them only when a distinct indication for its use is present. As our author suggests, calomel may be given in a tablet form very well as a candy, from the time the child has teeth enough and knows enough to use them. Iron may also be thus given. I am in the habit of using the phosphate of lime and iron—a grain of each flavored with wintergreen. These are eagerly taken by children. I still use expectorants and find them of great value. The trouble has been that too large doses of the carbonate or muriate of ammonia have been given; two to five grains at a dose to an infant. Dr. Job Lewis Smith observed years ago that the babies ill in the asylum with bronchitis, died quite frequently. Autopsy showed that death was caused by gastritis. Inquiry elicited the fact that the gastritis was caused by the heroic doses of the ammonias administered. Such large doses should never be given. One grain should be given to a child of

one year; one half grain at six months; one quarter grain at three months.

I wish to protest strongly against the use of any form of opium in young children. If the drug is indicated it should be given in single doses by the physician himself. We all see deaths in children occurring from opium narcosis. They bear the drug illy. In bronchitis where I want a cough sedative I use instead of opium, hyoscyamus which checks cough without locking up secretion.

Chloral hydrate is an excellent, safe sedative. One grain may be given to a new born baby with safety. The dose for a child of one year is three grains.

We are using less and less medicine for the cure of diarrhea. The removal of the primal cause is more and more frequent, crowning our efforts with success. I have long since ceased to give cod-liver oil to children. If a fat is indicated I give a more cleanly one in the shape of cream.

DR. LITTLE: As to the use of expectorants in infancy and early childhood, it is certainly my belief that they are seldom if ever indicated, where other measures, counter-irritation, inhalations, et cetera, can be carried out.

For the benefit of those gentlemen who were late and did not hear the first part of the paper, it is but fair to state that I am not an advocate of drugs where other therapeutic means may be employed. Nor does my title imply favoritism in drugs or formulæ in meeting certain diseases but in meeting identical indications.

Regarding the internal administration of acetozone solution, the quantity of fluid necessary is objectionable, as is also the taste. The preparation may be given in capsules, but from experiment I believe that continued administration in this form is inadvisable, as it seems to have a tendency to irritate the stomach.

It is admissable, as was stated in discussion, that the internal use of the ordinary antiseptics has little influence in severe diarrheas. Acetozone, however, seems to be in a class by itself, as regards strength, and it may prove of value to us, especially in irrigation of the colon.

Fourth Pan-American Medical Congress.—The Minister of the Argentine Republic at Washington has notified the Executive Committee of the Fourth Pan-American Medical Congress that his government desires the postponement of the Congress from June, 1903, to October, 1905, in order that a more fitting reception may be given delegates in Buenos Ayres; and because the earlier date would conflict somewhat with the International Congress at Madrid.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, December 16, 1902.

The President, HENRY A. FAIRBAIRN, M.D., in the Chair.

The meeting was called to order and the minutes of the previous meeting read and approved. One hundred members present.

REPORT OF COUNCIL.

The following candidates for membership have been accepted by the Council: Wm. H. Happe, L. I. C. H., 1901; P. J. Mooney, N. Y. University, 1883; Wm. Linder, Bellevue Hosp. Med. Col., 1896; John G. Williams, Yale, 1900; E. S. Hodgskin, P. & S., 1893; George E. Deely, P. & S., 1900; Anna C. de la Motte.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the Council were declared, by the President, elected to active membership: Bella B. Lysaght, Cornell, 1901; Sidney D. Wilgus, Univ. Buffalo, 1895; James R. Bird, P. & S., N. Y., 1858; Frederick C. Holden, N. Y. Univ., 1892; James F. Morgan, L. I. C. H., 1868; George E. Straub, L. I. C. H., 1902; Jeanette Baldwin, Cornell, 1901.

APPLICATIONS FOR MEMBERSHIP.

Applications were made by the following:

Edward E. Wilson, Brooklyn avenue and Bergen street, P. & S., 1900; proposed by Warren S. Simmons; seconded by Wm. S. Hubbard.

DeWitt W. Parker, 136 Remsen street, L. I. C. H., 1892; proposed by John A. Schmidt; seconded by J. M. Winfield.

John A. Quell, St. Mary's Hospital, P. & S., 1902; proposed by R. J. Morrison; seconded by E. F. Parker.

R. C. Holcomb, Naval Hospital, L. I. C. H., 1896; proposed by A. A. Hussey; seconded by H. A. Fairbairn.

H. W. Haskell, Bedford and Park avenues, N. Y. Univ., 1891; proposed by O. A. Gordon.

The President announced that the total collections to date for the Library Fund amounted to \$6,745.

SCIENTIFIC PROGRAM.

1. Report of the Historical Committee, by the Chairman, James P. Warbasse, M.D.

2. Address: The By-paths of the Doctor's Life, by George W. Guthrie, M.D., Wilkes-Barre, Pa.

EXECUTIVE SESSION.

The Secretary read a letter from Dr. Verranus Morse, thanking the Society for the compliment of election to honorary membership. On motion, duly seconded, it was requested that the Secretary spread the letter upon the minutes.

Resolutions commending the work of the Milk Commission of this Society, and extending the thanks of the Society to the Trustees of the Hoagland Laboratory for their generosity in placing the staff of the Department of Bacteriology at the service of the Commission were read and adopted.

Dr. G. R. Fowler gave notice in writing of his intention to present at the next meeting a motion to amend Chapter 17, Section 1, of the Constitution and By-laws, which reads as follows:

"The precepts of the Code of Medical Ethics of the American Medical Association shall be the guide of the members of this Society, and any disregard or violation thereof may be cause for investigation."

So that it will read:

"The standard of professional conduct of the Medical Society of the State of New York shall be the guide of the members of this Society."

Nominations for officers for the ensuing year were made as follows:

For President—Charles N. Cox.

For Vice-President—H. B. Delatour, G. R. Butler, David Myerle, John E. Sheppard.

For Secretary—Wm. S. Hubbard.

For Associate Secretary—W. C. Woolsey.

For Treasurer—O. A. Gordon.

For Associate Treasurer—J. R. Stivers.

For Directing Librarian—N. T. Beers, J. M. Winfield.

For Censors—C. H. Goodrich, R. J. Morrison, David Myerle, W. C. Wood, H. G. Webster, J. M. Van Cott, W. F. Dudley.

For Trustee—H. A. Fairbairn.

For Ten Delegates to State Society—D. E. Warren, W. C. Wood, A. M. Judd, Burt Harrington, A. Rae, J. J. Keyes, A. C. Howe, A. Murray, C. E. Scofield, T. B. Spence, L. A. Neiman, R. B. Anderson, E. H. Mayne, C. W. Stickles, W. C. Woolsey, J. G. Dickert, J. W. Malone, W. H. Maddren, W. S. Simmons, R. W. Westbrook.

Resolutions extending the thanks of the Society to Dr. Joseph H. Raymond, the retiring Editor of the *BROOKLYN MEDICAL JOURNAL*, for his services since 1888, were read and adopted.

Adjourned.

WM. S. HUBBARD,
Secretary.

BROOKLYN MEDICAL SOCIETY.

76TH REGULAR MONTHLY MEETING, OCTOBER
17, 1902.

The President, Dr. WM. H. HAYNES, having entirely recovered from his recent illness, occupied the chair.

In the absence of Dr. H. E. ROGERS, the Recording Secretary, Dr. ALFRED BELL acted as Secretary, pro tem.

The reading of minutes of previous meeting was deferred until the following meeting owing to the absence of Recording Secretary.

Admission to membership:

Dr. S. R. Blatteis, 45 Varet street, Bellevue, '98.

Propositions for membership:

W. L. Bartow, 200 Ryerson street, L. I. C. H., '01; J. L. Longstreet, St. John's Hospital, Vermont, '00; W. S. Simmons, 338 Lafayette avenue, P. & S.; proposed by Dr. Wm. H. Haynes, seconded by Membership Committee.

Dr. Haynes then announced that Dr. M. E. Parrott, the Vice-President, had so far recovered his health that he was able to go to the Virginia Hot Springs.

CLINICAL SECTION.

Dr. Hoople, Chairman.

1. Dr. R. W. Westbrook: (a) Specimen—Intussusception from young infant.

2. Dr. W. R. A. Carley: (a) Interesting case of heart disease.

3. Dr. Jas. C. Kennedy: (a) Multilocular cyst of ovary. (b) Specimen—Gangrenous appendix without rupture.

4. Dr. Hoople: (a) Case of Cyclitis—inflammation of the ciliary body.

PROGRAM.

Paper: "The Diagnosis of Gynecological Cases," Dr. R. L. Dickinson.

Discussed by Drs. Walter Chase, Jno. O. Polak, Jno. D. Sullivan, Stephen Lutz.

A vote of thanks was then tendered to Dr. Dickinson for his excellent paper.

Dr. A. H. Brundage presented the society with his Manual on Toxicology.

A vote of thanks was tendered to Dr. Brundage for his kindness.

Adjournment and social session.

HUGH EDWARD ROGERS, M.D.
Rec. Sec.

LONG ISLAND MEDICAL SOCIETY.

STEPHEN L. TAYLOR, M.D., Editor.

The 114th regular meeting was held on the evening of Nov. 4, 1902. The president, Dr. WILLIAM S. HUBBARD was in the chair.

The scientific programme was as follows:

PAPER: REPORT OF EPILEPTIFORM ATTACKS CURED
BY NASAL OPERATION.—S. H. LUTZ, M.D.

[This paper is published elsewhere in the JOURNAL and will not be repeated here.]

TUBERCULAR DISEASE OF KNEE-JOINT.

DR. HUBBARD presented a patient who had had a tubercular disease of the knee joint. The child is now four and one-half years old and has been under treatment for three years. The joint has been immobilized with a plaster cast. There is now no sign of active disease in the joint. The child's general health is excellent. She limps because of the flexion of the joint.

DR. NAPIER said that the deformity should be corrected by forcible straightening under anesthesia.

DR. CLAYLAND thought it wise to postpone the straightening until all possible danger of exciting active disease in the joint had passed.

DR. HUBBARD exhibited an appliance of his own for assisting in the application of bandages. It is a steel frame, which can be folded so as to be carried in the pocket, and weighs one pound. The frame is perfectly steady and can support any portion of the body.

PAPER: DEFORMITIES OF THE FEET—DR. NAPIER.

[This paper is published elsewhere in the JOURNAL and will not be repeated here.]

Discussion.

DR. CLAYLAND said that it was the custom of the schools to teach the children to toe out, which, of course, was an incorrect position of the foot.

DR. MOSHER said that a correct shoe was difficult to obtain. The shoemakers change the last each year, whether they have a good one or not. This year's model was especially bad, as the great toe is turned from the median line.

LONG ISLAND MEDICAL SOCIETY.

STEPHEN L. TAYLOR, M.D., Editor.

The 115th regular meeting was held on the evening of December 2, 1902. The President, DR. WILLIAM S. HUBBARD, was in the chair. The following officers were elected for the coming year:

President, R. H. Pomeroy.
Vice-President, Edward Hodges.
Secretary, S. H. Lutz.
Treasurer, W. A. Tomes.
Trustee, A. C. Jacobson.
Delegate, W. S. Hubbard.
Editor, S. L. Taylor.

The scientific programme was as follows:

Paper, Dr. Jameson, "Atropia, Its Uses and Contra-Indications in Ophthalmic Practice."

Paper, Dr. Bacon, "An Historical Epitome of Anatomy."

Paper, Evarts L. Prentiss, Lit.B., "Some General Hints to Medical Witnesses."

**LONG ISLAND ALUMNI ASSOCIATION OF THE
MEDICAL DEPARTMENT OF COLUMBIA
UNIVERSITY.**

On November 15, 1902, there was held at the Montauk Club, Lincoln Place and Eighth avenue, the seventh annual meeting of the Long Island Alumni Association of the Medical Department of Columbia University. The meeting consisted of a dinner, at which were present about sixty members of the association. The retiring president, Dr. Warbasse, presided as toastmaster with great brilliancy. The toasts responded to were as follows: "The Education of the Public," Dr. Bristow, elucidated in a scholarly address; "Columbia University," Dr. Fairbairn, in a manner increasing our love for both university and the

speaker; "Our Sires of Eld," Dr. Ostrander, who gave us all points; "The Faculties," Dr. Rushmore, who is one of the faculty of the Long Island, and—an honor to our association; "The Fell Sergeant," Dr. de Forest, in a manner both military and professional; "The Literature of Medicine," Dr. Jelliffe, of New York, in a manner both breezy and instructive. Other speakers were Dr. Ingalls, with his quaint New England stories; Dr. Webster, with the latest points on football, being fresh from the Yale-Princeton game, and Dr. Bayles, who read a letter from our member absent and much missed—Dr. Peacocke—which afforded much amusement. The officers elected for the ensuing year were Dr. Judd, President; Dr. de Forest, Vice-President; Dr. Wm. C. Woolsey, Secretary; Dr. John Cochran, Treasurer, and Dr. Rushmore, Trustee, to succeed Dr. Palmer, term expired. The prime movers in the formation of this organization were Drs. A. C. Brusck, Chas. Jewett, Ernest Palmer, H. A. Fairbairn, Alderton, Delatour, Tomes, Hodgskin, Barber, G. H. Treadwell, Blach, Gibbons, F. J. Wood, Regan, Peck (now deceased), Briggs, Schoenijohn, Brandt and Criado. Dr. Chas. Jewett first presided as temporary Chairman. It is exclusively a social organization, meeting once yearly for the entertainment of its members, now numbering about 250, about 190 of whom reside in Brooklyn proper.

A. M. JUDD, Secretary.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

OFFICE OF THE SECRETARY,
111 W. Kentucky street,
Louisville, Ky.

The twenty-eighth annual meeting of the Mississippi Valley Medical Association was held in Kansas City, October 15, 16 and 17. The following officers were elected for the ensuing year:

President—Edwin Walker, M.D., Evansville, Ind.

First Vice-President—Hugh T. Patrick, M.D., Chicago, Ill.

Second Vice-President—Wm. Britt Burns, M.D., Memphis, Tenn.

Secretary—Henry Enos Tuley, M.D. (re-elected), Louisville, Ky.

Treasurer—Thos. Hunt Stucky, M.D. (re-elected), Louisville, Ky.

Chairman Committee of Arrangements.

Next place of meeting, Memphis, Tenn., October 7, 8 and 9, 1903.

HENRY ENOS TULEY.

MISCELLANEOUS.

LIBRARY FUND.

The following subscriptions to the fund for erecting the stacks had been received by the treasurer up to December 9, 1902.

W. Darby, Esq.....\$	5.00	G. Smith, M.D.....	15.00
J. Wilshear, Esp	5.00	J. W. Ingalls, M.D.....	15.00
G. N. Ferris, M.D.....	5.00	E. P. Hickok, M.D.....	15.00
G. Wackerhagen, M.D.....	5.00	W. K. B. Pratt, M.D.....	20.00
C. Hyde, M.D.....	5.00	Arthur Mathewson, M.D.....	20.00
G. R. Hall, M.D.....	5.00	Walter Wood, M.D.....	20.00
W. Bryan, M.D.....	5.00	Mrs. Edwin Beers.....	25.00
C. D. Napier, M.D.....	5.00	W. Lamb, Esq.....	25.00
W. E. Howell, Esq.....	10.00	E. M. Sheppard, Esq.....	25.00
A. M. Bliss, Esq.....	10.00	W. L. Chapman, M.D. }	25.00
P. C. Jameson, M.D.....	10.00	L. N. Foote, M.D. }	
J. C. Bierwirth, M.D.....	10.00	L. N. Lanehart, M.D.....	25.00
F. C. Paffard, M.D.....	10.00	A. R. Jarrett, M.D.....	25.00
J. C. MacEvitt, M.D.....	10.00	L. L. Nichols, M.D.....	25.00
E. A. Parker, M.D.....	10.00	B. B. Mosher, M.D.....	25.00
W. E. Butler, M.D.....	10.00	C. Zellhoefer, M.D.....	25.00
J. R. Bird, M.D.....	10.00	L. A. W. Alleman, M.D.....	25.00
J. Y. Tuthill, M.D.....	10.00	Stephen Lutz, M.D.....	25.00
P. Scott, M.D.....	10.00	H. B. Price, M.D.....	25.00
W. M. Belcher, M.D.....	10.00	W. J. Cruikshank, M.D.....	25.00
E. Palmer, M. D.....	10.00	V. Robertson, M.D.....	25.00
D. D. Roberts, M.D.....	10.00	F. C. Campbell, M.D.....	25.00
J. S. Waterman, M.D.....	10.00	G. Drury, M.D.....	25.00
W. S. Applegate, M.D.....	10.00	J. E. Sheppard, M.D.....	25.00
J. R. Kevin, M.D.....	10.00	P. L. Schenck, M.D.....	25.00
A. J. Dower, M.D.....	10.00	J. M. Van Cott, M.D.....	25.00
B. C. Collins, M.D.....	10.00	J. P. Warbasse, M.D.....	25.00
J. R. Stivers, M.D.....	10.00	A. T. White, Esq.....	50.00
J. D. Sullivan, M.D.....	10.00	W. Mynderse, Esq.....	50.00
R. H. Pomeroy, M.D.....	10.00	B'klyn Pathological Society.....	50.00
A. M. Curry, M.D.....	10.00	G. R. Butler, M.D.....	50.00
A. Murray, M.D.....	10.00	John Harrigan, M.D.....	50.00
G. R. Reed, M.D.....	10.00	H. Conkling, M.D.....	50.00
H. H. Schelling, M.D.....	10.00	A. T. Bristow, M.D.....	50.00
G. W. Brush, M.D.....	10.00	W. Dick, Esq.....	100.00
Thos. B. Hegeman, M.D.....	10.00	J. H. Dick, Esq.....	100.00
J. C. Kennedy, M.D.....	10.00	C. D. Wood, Esq.....	100.00
W. A. Shepard, M.D.....	10.00	A. Abraham, Esq.....	100.00
J. E. Langstaff, M.D.....	10.00	G. F. Peabody, Esq.....	100.00
C. W. Stickles, M.D.....	10.00	F. S. Jones, Esq.....	100.00
W. B. Brinsmade, M.D.....	10.00	Jacob Fuhs, M.D.....	100.00
J. A. Somers, M.D.....	10.00	H. N. Reed, M.D.....	100.00
H. P. DeForest, M.D.....	10.00	M. Figueira, M.D.....	100.00
E. H. Bartley, M.D.....	10.00	J. A. McCorkle, M.D.....	100.00
W. H. Rankin, M.D.....	10.00	F. W. Wunderlich, M.D.....	100.00
F. H. Clark, M.D.....	10.00	Charles Jewett, M.D.....	100.00
J. J. Terhune, M.D.....	10.00	T. R. French, M.D.....	100.00
F. W. Shaw, M.D.....	10.00	Skene Memorial Fund.....	480.00
A. Ross Matheson, M.D.....	10.00		

CONTRIBUTORS TO SKENE MEMORIAL FUND.

Faculty of L. I. C. H.....	
H. E. Rogers, M.D.....	
J. J. Terhune, M.D.....	
W. S. Hubbard, M.D.....	
Walter Truslow, M.D.....	

P. C. Jameson, M.D.....	
A. W. Shepard, M.D.....	
H. N. Read, M.D.....	
E. S. Chick, M.D.....	
G. H. Cruikshank, M.D.....	
W. Mirtner, M.D.....	
A. H. Ritter, M.D.....	
L. D. Mason, M.O.....	
L. D. Dickert, M.D.....	
F. A. Jewett, M.D.....	
E. A. Wheeler, M.D.....	
E. C. Dudley, M.D.....	
M. F. DeLorme, M.D.....	
W. H. Humiston, M.D.....	
G. H. Jennings, M.D.....	
O. C. Smith, M.D.....	
E. H. Babcock, M.D.....	
C. A. Byrne, M.D.....	
J. W. Smith, M.D.....	
J. C. M. Floyd, M.D.....	
L. P. McPhail, M.D.....	
R. Ormiston, M.D.....	
A. M. Gamier, M.D.....	
E. M. Sturgis, M.D.....	
N. T. Beers, Jr., M.D.....	250.00
H. B. DeLatour, M.D.....	300.00
C. F. Barber, M.D.....	1,500.00
H. A. Fairbairn, M.D.....	1,500.00
	<hr/>
	\$6,735.00

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

Dr. Ver Nooy W. Weed announces his removal from 675 Jefferson avenue to 160 Wierfield street.

Dr. Joseph H. Raymond, Assistant Sanitary Superintendent for the Borough of Brooklyn, was absent from the city in December, attending the meeting of the American Public Health Association at New Orleans.

Dr. Nathan T. Beers (L. I. C. H., '96), F.S.Sc. (London), is the author of a series of articles on "Illuminated Manuscripts," now appearing in *Town and Country*. The illustrations are repro-

ductions from ancient books, and original designs by the author.

At the December meeting of the Long Island Medical Society the following officers were elected: President, Ralph H. Pomeroy; Vice-President, Edward Hodges; Secretary, Stephen A. Lutz; Treasurer, William A. Tones; Trustees—Arthur C. Jacobson, Sylvester J. McNamara and Heber N. Hoople.

Dr. John F. Fitzgerald (Albany Medical College) has recently been appointed Superintendent of the Kings County Hospital, in place of Dr. Duryea, resigned. He will, like his predecessor, be General Medical Superintendent of all charitable hospitals in Kings and Queens counties.

The surgeons of the four Brooklyn regiments have challenged the officers of these regiments to a revolver match, teams to consist of one medical officer from each regiment and one company officer of each regiment. The medical team will have as its representatives Dr. De Forest, 13th; Dr. F. J. J. Wood, 47th; Dr. Macumber, 14th; Dr. Napier, 23d.

Dr. John Harrigan has been elected President of the Medical Staff of St. Mary's Hospital, in place of Dr. John Byrne, deceased.

In the suit of James Wilson to recover \$50,000 from the Homœopathic Hospital for alleged improper surgical treatment, it was shown at the trial that the plaintiff paid for a room and board but nothing for the services of doctors and nurses, that being the charitable work of the institution. The Court dismissed the complaint on the ground that "where a corporation, having no stock and paying its doctor and those serving the corporation nothing for their services, undertakes the treatment of the sick and injured, it is responsible only for ordinary diligence in the selection of those who serve the institution, unless a specific contract shall have been made for medical and surgical treatment for money which is received by the institution."

On December 1st, Health Commissioner Lederle appointed twelve school nurses to work in conjunction with the Medical School Inspectors. These nurses, who are regularly graduated from reputable training schools, receive for their services \$75 a month, nine being allotted to Manhattan and three to Brooklyn. Each nurse, who has from three to four schools on her list, visits each school every day, cares for the children that the Medical Inspector has indicated as needing attention, and later visits the homes of children "excluded" by the Medical Inspector. The

School Nurse's duties will supplement the work of the Medical Inspectors. They will begin treatment at once on all "excluded" children, and see that the latter do not remain away from school longer than necessary. Scalp and eye diseases, especially trachoma, will receive particular attention, so that in the end there will be fewer absentees and a greater degree of health. The value of the additional lessons of cleanliness the School Nurse gives will in a great measure act as a preventive to the prevalence of the more common diseases met with in school children.

RESOLUTIONS ADOPTED BY THE COUNCIL AND FELLOWS OF THE NEW YORK STATE MEDICAL ASSOCIATION.

Resolved, That the report of the committee appointed to confer with a committee representing the Medical Society of the State of New York for the purpose of devising a plan for the union of The New York State Medical Association and the Medical Society of the State of New York is hereby approved.

Resolved, That the plan presented at the joint session of the two committees by the committee representing this Association, whereby "The New York State Medical Association and the Medical Society of the State of New York be reconstituted by an act of the Legislature into a State Medical Body to be known as the Medical Society of the State of New York, of which all members in good standing in both bodies shall be charter members, and the reconstituted State Medical Body shall be the representative in this State of the American Medical Association by virtue of its acceptance of the Constitution and By-Laws of the American Medical Association" is hereby accepted by The New York State Medical Association as an expression of our sincere desire for a union of the medical profession in this State.

Resolved, That the committee is hereby continued for the purpose of co-operating with any committee from the Medical Society of the State of New York to secure a charter from the Legislature at its next session in 1903, which charter shall reconstitute the two State organizations into one State body as set forth in the preceding resolution, but if the Medical Society of the State of New York shall fail to approve of such plan of union by a charter to be secured at the approaching session of the Legislature in 1903, then this committee shall be considered as dis-

charged and the proposition of this Association withdrawn.

Resolved, In case this committee should find occasion to apply to the Legislature at its next session for the purpose of securing the said charter it shall co-operate with the Standing Committee on Legislation of this Association.

Dr. R. H. Gibbons, of Scranton, Pa., gave some interesting testimony before the Anthracite Strike Commission. He said that the occupation of a miner subjects a man to pleurisy, asthma, bronchitis, sciatica and other diseases. He believed the day would come when men will be subjected to medical examination before they undertook mining.

Children, he said, who have suffered from any form of disease of the respiratory passages, bronchitis or pneumonia should never be permitted in the mines under the age of 15 years, because they should have a chance to eliminate the predisposing factor in the case of so-called miners' asthma.

Dr. Gibbons then described the surface indications of miners' asthma, his testimony in this respect not differing essentially from that given by other expert witnesses.

On further examination Dr. Gibbons said he did not mean to be understood as saying that miners form an unhealthy class, but that they are debilitated and run down. He spoke of the necessity for improved ambulance service at the different collieries.

In reply to a question, Dr. Gibbons said he did not believe there was an ambulance in the entire coal regions that had sterile blankets or that was sterile itself.

"In fact," said the doctor, "they are a bunch of infection. Every ambulance carries death and disease to every unfortunate miner who is placed in it."

Dr. J. Williams Henry announces his removal from 232 Macon street to 1383 Pacific street.

On November 19, 1902, Dr. Glentworth R. Butler read, by invitation, before the Harrisburg (Pa.) Academy of Medicine a paper, entitled "Some Observations Regarding the Diagnosis and Treatment of Cardiac Disease."

Dr. T. R. French, 150 Joralemon, announces that he has resumed practice.

Dr. Charles Jewett was made Honorary Vice-President of the International Congress of Gynecologists and Obstetricians at its meeting in Rome in September last.

The death of Dr. Malcolm Ethan Parrott, of 379 Jefferson Avenue, on December 16, removes from the profession one of its ablest members. Dr. Parrott was born in Modena, Ulster Co., N. Y., March 29, 1847, and was graduated from the Jefferson Medical College, Philadelphia, in 1883. He was a member of the County Society, Associated Physicians of Long Island, the Brooklyn Medical and other societies, and a member of the staff of the Bushwick Central Hospital.

"The Medical Library and Historical Journal" is the name of the new publication which will be edited by Mr. Albert T. Huntington, librarian of Kings County Medical Society, and Mr. John S. Brownne, librarian of the New York Academy of Medicine. We quote a few extracts from the editorial page: "It is designed to fill a place occupied by no other journal, in supplying to medical historians, medical librarians and medical bibliophiles an exclusive medium of intercommunication." "There is no other exponent of these interests in the field and we believe that one has cause for existence without being merely a useless addition to the already overcrowded field of medical journalism. The title, *Medical Library and Historical Journal*, is to be construed in its widest sense of applying to the library of the individual physician as well as to the large public library. Our aim is set forth on the title page—'Devoted to the Interests of Medical Libraries, Bibliography, History and Biography.' Librarians, historians and bibliophiles all meet on a common ground—bibliography." "There will appear original articles on the subjects of medical history and biography, practical medical library administration and economy, medical bibliography, the care of books, the history, construction and use of medical libraries, etc. Following the publication of the Transactions of the Association of Medical Librarians and the Editorial page, there will be departments devoted to queries, new appliances, notes and news, reviews, medical journals, an index medicus of every current medical book published in whatever language, announcements of new books, want and exchange lists, etc." "The index medicus is the only attempt at a *complete* index of every current medical book. It will be a feature which will recommend the *Journal* to every physician."

"In typographical appearance and in illustration, the *Journal* is designed to be pleasing to the eye of the true bibliophile." The contributors to the first number are: Lewis S. Pilcher, M.D., Brooklyn (illustrated); Eugene F. Cordell, Baltimore; Frederick P. Henry, Philadelphia (illus-

trated); James McF. Winfield, M.D., Brooklyn (illustrated). The *Journal* will be published quarterly, with a subscription price of \$2.00. We wish it all success and a bright and prosperous future.

The Brooklyn profession was well represented at the last annual meeting of the American Association for the Cure of Inebriety, in Boston, Thursday, December 18th. Dr. Agnes Sparks read a paper on "Alcoholism in Women"; Dr. L. D. Mason, on "Inebriety of To-day"; Dr. Charles H. Shepard, on "The Turkish Bath in the Treatment of Inebriety"; and Dr. J. B. Mattison, on "Narcotic Abuse and the Public Weal." Dr. Mason was re-elected President; Dr. Shepard made Vice-President; and Dr. Mattison, Chairman, Committee on Nostrums containing Dangerous Drugs.

The medical profession of Brooklyn will have an opportunity to hear a most interesting lecture at the Medical Society Building, 1313 Bedford Avenue, on January 17, 1903, when Dr. Charles Wardell Stiles, of the Marine Hospital Service and Hygienic Laboratory (Washington, D. C.) will deliver the third annual address to the Brooklyn medical profession, under the auspices of the Medical Club of Brooklyn. His subject will be "Hook-Worm Disease (uncinariasis), a newly recognized factor in American anemias." The lecture will be illustrated by lantern slides, and should be a most valuable contribution. While the public press has been amusing itself at the expense of the hook-worm and its relation to laziness, it is a fact, however, that hook-worm disease is just as much, in reality, a disease as malaria, and could probably be demonstrated in the "Crackers" of Florida and Georgia. This disease is the topic of the hour, and Dr. Stiles deserves an appreciative and enthusiastic audience.

On Saturday, December 20, Dr. Lorenz, through Dr. Charles Dwight Napier, operated before the medical profession of Brooklyn, at the Kings County Hospital, at which time he demonstrated his methods on three cases.

Dr. John O. Polak, Chairman of the Scientific Session of the Associated Physicians of Long Island, announces the following program for the annual January meeting, to be held at the Kings County Medical Society Building:

"Diagnosis of Primary Syphilis," by Dr. G. Morgan Muren, Brooklyn; discussed by Prof. Henry H. Morton and Dr. Nathan T. Beers, Jr.

"Hints on Office Gynecology," Dr. William E. Butler, Brooklyn.

Paper, subject not announced; Dr. Walter B. Chase, Brooklyn.

Owing to the fact that this is the annual meeting, the scientific session will last only one hour, papers being limited to ten minutes, and discussions to five.

The officers for 1903 will be elected, and a reception and dinner will be tendered to the Island members in the evening.

The News Editor wishes to state emphatically that members of the profession desiring to use these columns to announce change of address, personal notes, dates of meetings and other information should mail their contributions or telephone before the ninth of each month. An observance of this simple rule will be much appreciated by the Editor.

BOOK REVIEWS.

HANDBOOK OF MATERIA MEDICA, PHARMACY AND THERAPEUTICS: Including the Physiological Action of Drugs, the Special Therapeutics of Disease, Official and Practical Pharmacy and Minute Directions for Prescription Writing. By Samuel O. L. Potter, A.M., M.D., M.R.C.P., Lond. Ninth edition, revised and enlarged. Philadelphia, P. Blakiston's Son & Co., 1902. XIII., 17-951 pp. 8vo. Price: Cloth, \$5.00; Leather, \$6.00.

This present edition will be historical for it contains material gathered from the writer's experience in active professional practice in the Philippine Islands while he was serving as attending surgeon at the headquarters of the Department of the Pacific and Eighth Army Corps. He records his three years' experience while in active practice in a tropical climate among soldiers and civilians. Many new articles have been inserted and old ones have been expanded. The student and practitioner will find it of great value.

A MANUAL OF OTOTOLOGY.—By Gorham Bacon, A.M., M.D., Professor of Otology in Cornell University Medical College, New York. With an introductory chapter by Clarence J. Blake, M.D., Professor of Otology in Harvard Medical School, Boston. New (3d) edition. In one handsome 12mo. volume of 437 pages, with 120 engravings and 7 plates in colors and monochrome. Cloth, \$2.25, net. Lea Brothers & Co., publishers, Philadelphia and New York.

This compact little volume contains a great deal of valuable information and presents it in a carefully condensed form. The author recognizes the fact that it is impossible to adequately cover the subject of otology in the usual college course of instruction, and this work is designed to supplement such teaching and give the student a broader knowledge of this important subject. The text embodies the results of the writer's personal experience (which have been extensive and varied) in the treatment of diseases of the ear. Dr. Bacon insists

that it is essential that every graduate should be competent to diagnose diseases of the ear in their initial stages, "for thus is insured the best chance of preventing the more serious lesions." We are heartily in accord with this sentiment and believe that teachers of students of medicine could best devote their time to a consideration of the pathology, etiology and symptomatology of ear diseases, as these are of more importance to the beginner than lengthy details of treatment.

W. F. DUDLEY.

SAUNDERS' MEDICAL HAND-ATLASES. ATLAS AND EPITOME OF OTOTOLOGY. By Gustav Brühl, M.D., with the Collaboration of Prof. Dr. A. Politzer. Authorized Translation from the German. Edited by S. Mac Cuen Smith, M.D. Philadelphia and London. W. B. Saunders & Co., 1902. 292 pp., 24 l., 39 col. pl. 12mo. Price: Cloth, \$3.00.

This publication is essentially a hand-book for students and is well adapted to aid them in gaining a practical knowledge of this subject. The author recognizes the value of clinical instruction and also appreciates that it is impossible to give to the student, by simply a verbal description, a true picture of the objective symptoms presented by the ear when diseased. Dr. Brühl has therefore devoted nearly one-half of the volume to colored illustrations of histological and pathological specimens. They represent careful selections from a large mass of valuable material, including the unique collection of Prof. Politzer, and the extensive resources of the author.

W. F. DUDLEY.

PRACTICAL DIAGNOSIS: The Use of Symptoms and Physical Signs in the Diagnosis of Disease. Fifth edition, revised and enlarged. By Hobart Amory Hare, M.D., B.Sc. Philadelphia and New York, Lea Brothers & Co., 1902. XII, 17-698 pp., 25 col. pl. 8vo. Price: Cloth, \$5.00; Half-Morocco, \$6.50.

This well-known work is presented in fifth edition. It has averaged an edition nearly each year since its first appearance. We find the marks of careful revision.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Vol. 7. *Materia Medica and Therapeutics; Preventive Medicine; Climatology; Forensic Medicine.* Edited by George F. Butler, Henry B. Favill, Norman Bridge and Harold N. Moyer. June, 1902. Chicago, Year Book Publishers, 1902. 270 pp. 12mo. Price: Cloth, \$1.50; price of series (10 vols), \$7.50.

This is another year book. The names of the authors will do much to commend it. The work is greatly condensed.

DISEASES OF THE NOSE, PHARYNX AND EAR. By Henry Gradle, M.D. Philadelphia and London, W. B. Saunders & Co., 1902. 547 pp. 8vo. Price: Cloth, \$3.50.

This volume is deserving of careful study, and we commend it to every practitioner interested in this subject as a valuable addition to his working library. The intimate co-relation of diseases of the naso-pharynx and the ear cannot be too positively emphasized. This is fully appreciated by the author and he proves it by the title and by the contents of his book. An abnormal

naso-pharynx is a permanent menace to the integrity of the ear. Dr. Gradle states that "The organ most likely to suffer by extension of naso-pharyngeal disease is the ear." The association of these organs in disease is logical. In practice it is inevitable. The advice regarding treatment is concise and direct, and is based upon the results of twenty-five years of active work. In a chapter upon the "Influence of nasal and pharyngeal affections upon other parts of the organism," the author says: "The majority of cases of disease of the middle ear, various ocular troubles, rare instances of pyogenic affections of the brain or its membranes, and quite often certain functional nervous derangements, can be traced etiologically to the upper air passages."

The discussion of these subjects is too rare in text books. It makes interesting and instructive reading, and illustrates the thoroughness of the work.

W. F. DUDLEY.

MATERIA MEDICA, THERAPEUTICS, MEDICAL PHARMACY, PRESCRIPTION-WRITING AND MEDICAL LATIN. A Manual for Students and Practitioners. By William Schleif, Ph.G., M.D. Second edition, revised and enlarged. Philadelphia and New York, Lea Brothers & Co., 1902. 389 pp. 8vo. Price: Cloth, \$1.75.

This volume is a condensed and comprehensive textbook and work of reference on materia medica and therapeutics. It has been received with favor in former editions. Its present additions will enhance that favor.

DISEASES OF THE RECTUM AND ANUS. Designed for Students and Practitioners of Medicine. By Samuel Goodwin Gant, M.D., LL.D. Second Edition, Rewritten and Enlarged. Phila., F. A. Davis Co. 1902. XXIV, 687 pp., 37 pl. 8vo. Price: Cloth \$5.00; Sheep or Half Russia, \$6.00.

The first impression made by this book is one of wonder that the author could find material in a comparatively limited subject, to fill nearly 700 pages. The explanation lies in the space occupied by the large number of vividly colored plates, the many illustrations, the wide margins and the great detail in the treatment of each disease. The chapter on Hemorrhoids occupies 64 pages. Many of the illustrations cover simply the technic common to all surgical procedures. This gives a Surgery-made-easy style to the book. However, as the volume is designed primarily for students, that may be fitting.

Three new chapters have been added to the second edition and the chapter on Cancer and Colostomy written for the first edition by Mr. Herbert Allingham, has been entirely rewritten by the author. It is interesting to notice in the preface to the first edition, that the author congratulates himself on having Allingham for a collaborator in these words, "for I doubt if there is any man living more capable of dealing with these important subjects than he." One of the most interesting chapters in the book is that on Auto-infection and Auto-intoxication. It contains the teaching of the present day on this most important subject. A very valuable feature is the reference table to the literature of each subject. There are 28 of these tables.

The book will be of the greatest assistance to the occasional surgeon.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Vol 6. General Medicine. Edited by Frank Billings, M.S., M.D. With the Collaboration of S. C. Stanton, M.D. May, 1902. Chicago, Year Book Publishers, 1902. 271 pp. 12mo. Price of volume: \$1.50; price of series (10 vols.), \$7.50.

This volume is made up of abstracts from current literature which reflect some views respecting typhoid fever, yellow fever and the diseases of the gastro-intestinal tract.

The favor with which this and other volumes of its kind will be received will depend upon the work of the compiler. His task is not always done with judgment and is made difficult by the wide field to cover and the smallness of space allotted to him.

There is much of value in this little book.

AMERICAN EDITION OF NOTHNAGEL'S ENCYCLOPEDIA. Diphtheria. By William P. Northrup, M.D. Measles, Scarlatina, German Measles. By Theodor von Jürgensen, M.D. Edited, with additions, by William P. Northrup, M.D. Authorized Translation from the German, Under the Editorial Supervision of Alfred Stengel, M.D. Philadelphia and London, W. B. Saunders & Co., 1902. 672 pp., 24 pl. 8vo. Price: Cloth, \$5.00; Half-Morocco, \$6.00.

We cannot say too much in praise of this excellent work. The first article, on diphtheria, written by our fellow townsman, W. P. Northrup, is of great merit for clearness of statement, beauty of illustration and thoroughness. He boldly and truthfully states that there is one specific in this disease, viz., antitoxin. Much space is given to intubation, all the steps of which are illustrated by X-ray pictures. Measles and scarlatina are fully handled in the remaining chapters and make up a useful and practical volume.

A TEXTBOOK OF THE SURGICAL PRINCIPLES AND SURGICAL DISEASES OF THE FACE, MOUTH AND JAWS. For Dental Students. By H. Horace Grant, A.M., M.D. Philadelphia and London, W. B. Saunders & Co., 1902. 231 pp., 2 pl. 8vo. Price: Cloth, \$2.50.

This volume is an excellent example of book making. The chapters on Bacteriology and Surgical Diseases give a good summary of the generally accepted principles of surgery. There are many good word pictures of the more common conditions. As the title claims, it is a textbook clearly written for teaching purposes. Any dental student familiar with this work is well prepared to cope with surgical emergencies. The chapter on Diseases of the Maxillary and other Sinuses, is masterly in its brevity and completeness. Were we disposed to criticism we would mention the advice, to differentiate between abscess and aneurism with an aspirator, adversely. We would take exception to the statement that nitrous oxide anesthesia cannot be kept up longer than one minute, because we use it constantly and it can be kept up for an indefinite length. The author is more hopeful than most of us as to the results of operations for cleft palate. The feature most lacking in this work is a good chapter on the Interdental splint which we have found so useful in treating fractures of the lower jaw.

AN ESSAY UPON THE GENERAL PRINCIPLES OF PREVENTIVE MEDICINE,

BY W. WAYNE BABCOCK, M.D.

Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia; Pathologist Kensington Hospital; Assistant Pathologist Philadelphia Hospital, etc.

Awarded the first prize of one thousand dollars in the competition instituted by The Maltine Company.

INDEX.

THE FACTORS OF DISEASE.

Chapter.

- I.—THE ORIGIN OF DISEASE.....
- II.—The Intrinsic Factors of Disease....
- III.—The Extrinsic Factors of Disease.—
Physical
- IV.—The Extrinsic Factors of Disease—
Physical, Continued
- V.—The Extrinsic Factors of Disease—
Toxic
- VI.—The Extrinsic Factors of Disease—
Sociologic
- VII.—The Extrinsic Factors of Disease—
Animate
- VIII.—The Extrinsic Factors of Disease—
Vegetable Parasites

THE DIFFUSION OF THE PARASITES OF DISEASES.

- IX.—Invasion of the Body by Parasites..
- X.—The Diffusion of Parasites by Ani-
mals
- XI.—The Diffusion of Parasites by Food..
- XII.—The Diffusion of Parasites by Social
Intercourse

THE INHIBITION OF THE FACTORS IN DISEASE.

- XIII.—Disinfection
- XIV.—Destruction of Animal Conveyors...
- XV.—The Production of Immunity.....

CHAPTER I.

THE ORIGIN OF DISEASE.

HEALTH AND DISEASE.

ORGANIZED beings are continually acted upon by their environment, and life is an expression of their continuous reaction. When reaction ceases, and the organism becomes the passive prey of surrounding forces, life is extinct, and has been succeeded by what is termed death. Living, the organism withstood the force of gravity and raised itself from the earth; maintained an equable temperature despite the surrounding alternations from heat to cold; retained the moisture of its tissues against the dessicating influence of the encircling air. Dead,—the organism falls to the earth, follows the temperature changes in the adjacent media, while the atmosphere filches its moisture and leaves it shrunken and misshapen.

In reacting against its environment, a living organism acquires its development, so that the

ceaseless struggle immutably bound up with life is not without advantages. So long as the organism is able to maintain the equilibrium of its functions, the condition is described as *health*. All creatures, however, are only capable of reacting against a special and very limited environment, and the base of health's equilibrium is, therefore, a relatively narrow one.

Before an altitude of 9,000 meters is reached, the aeronaut succumbs to the rarefied air and cold, while the immense weight of water crushes in upon the diver who dares brave the watery depths.

The human body withstands but limited variation in temperature, in the composition of atmosphere, in electrical influences and many other forces. By the artifices of civilization a broader environment has been secured for the human race, but too often these have interfered with the equilibrium of health. And so civilization and disease often go hand in hand, and it becomes the chief duty of the physician not to treat disease, but to point out how it may be prevented.

At once it becomes apparent how futile it is to try and restrict the race to a limited and innocuous environment. The clash from mailed fists will go in defiance of the Humanitarian; the Glutton, the Inebriate, the Profligate will persist despite the Reformer, and in the marts of trade where misdirected commercial zeal racks the nerves and oftentimes blasts the mind, the physician's warning voice will continue to go unheard.

Indeed, so lightly do we regard our health that, while Departments of War and of State and of Agriculture are considered essential, the safeguarding of our people from disease finds no place in the Cabinet—the Cabinet that conducts the affairs of our nation. And yet, although much of his effort goes unheeded, the true physician finds great satisfaction in the study and application of the principles of prevention, and can aspire to no higher tribute than that paid Edward Jenner by Thomas Jefferson—"You have erased from the calendar of human afflictions one of its greatest —. Future nations will know by history alone that the loathsome smallpox has existed, and by you has been extirpated."

Prophylaxis.

Prophylaxis, the science of the preservation of health or the prevention of disease, is based upon our knowledge of the causation of disease, or *etiology*. This basis includes not merely the consideration of morbid agents, the manner of their diffusion, and the ways in which they invade and modify the living organism, but also a study of those modes of life that are prejudicial to the integrity of the body. Given a precise knowledge of the way in which a disease originates, measures of prevention may be readily formulated. The American Yellow Fever Commission gave us no new measure of prophylaxis, and yet they rendered it possible to eradicate a disease. We knew how to destroy mosquitoes and to prevent their bites, yet our sanitary measures against yellow fever were inefficient and we diffused and wasted our energies in an unsuccessful attempt to check

its headway. With knowledge that the disease was mosquito borne, preventive measures were focalized against this insect, and soon Havana, perhaps for the first time in her history, was free from yellow fever. Likewise, it is less important that new prophylactic inoculations be devised against disease, than that we have a better knowledge of the nature of immunity. It follows that to prevent disease one must first grasp somewhat of its nature and origin, and knowing this, it will not be found difficult to develop a prophylaxis.

We shall, therefore, in our consideration of preventive medicine pay most attention to the more recent conceptions as to the nature of disease, and trust that where the application is omitted, the fertile mind of the reader may be stimulated to develop the appropriate preventive measure. Moreover, we concede the knowledge of our reader respecting the important general principles of personal hygiene and public health, of food, respiration, rest and exercise, of water supplies, sewage disposal, plumbing, building construction and like matters, and rather than reiterate the well-worn truths, will give them a briefer mention than their importance deserves. Again, even our imperfect knowledge of disease embraces so many observations that we can but hope to illustrate the broad underlying principles upon which the practice of preventive medicine rests.

Health may be said to express the harmonious reaction of the living organism to its environment. It is a relative, rather than an absolute condition, and implies the adaptability of the organism in structure and function to its surroundings. Of all organized beings, man shows the greatest ability to adjust himself to diverse environments, and for him the torrid atmosphere of the tropics, the extreme cold of the Arctic regions, the altitude of high mountains, the low level of plains, are alike compatible with perfect health. As health presupposes a structural and functional condition suited to the environment, and condition the reverse of this is properly considered an abnormality. *Disease* is structural or functional abnormality of the organism.

Diseases are characterized by metabolic nervousness occurring within the body, from the untoward action of physical, chemical or organized agents or psychic influences. The energy of casual factors, while important in the origin, are usually inconspicuous in the manifestations of disease. Thus, the force of the percussion cap is not appreciable in the effects of the explosion it incites. The manifestations of disease are not limited by the number of casual factors, but by the number of reactions that may be shown by the tissues. This we should not forget—that *disease expresses the reaction of the organism, not the action of the so-called "germ."*

When diseases result from microorganismal action, they are termed *infectious, zymotic or specific diseases* or *mycoses*. The attempt has been made to restrict the term "infectious" to diseases produced by bacteria alone; but this is unjustifiable. A number of the most characteristic *infectious diseases*, such as smallpox and yellow

fever, may prove, as has malaria, to be due to an animal rather than a vegetable parasite. It seems best, therefore, to include among the infectious diseases, all those caused by living microorganisms, whether bacteria, molds, yeasts or the smaller animal parasites.

Infection, Contagion and Inoculation.—Communicable diseases are those transmissible from animal to animal. The term *infection* may be applied either to direct disease transmission or to transmission of an indirect character, as by means of air, water, soil and clothing; by many authors, however, it is restricted to the latter method. Such indirect transmission occurs in typhoid fever, cholera and dysentery. *Contagion* is a form of infection, implying the more direct mode of transmission, in which the disease is acquired through close proximity of the well to the sick. No lesion of the surface is required. Smallpox, typhus fever and scarlet fever are classed as contagious diseases. *Inoculation* occurs when the microorganism enters the body through a break or lesion in the skin or mucous membrane. Rabies, tetanus, syphilis and malaria are examples of *inoculable diseases*.

With the increase of knowledge of the infectious diseases these terms have a lessened value. There is no sharp line of distinction between infection, contagion and inoculation, for in a single disease any one of the three methods may be operative. For example, scarlet fever may be conveyed by milk, and therefore, by infection; by direct contact, or *contagion*; and by the subcutaneous injection of saliva from the infected into the well, or by *inoculation*. A classification, however, may be made from the predominant natural method of transmission for the special disease. Unfortunately, in a number of instances this is as yet obscure.

If a disease be continuously present in a locality, it is said to be *endemic*. Thus, until 1901 yellow fever was endemic in Havana.

"An *epidemic* is an outbreak of a communicable or infectious disease, affecting a dozen or more individuals in quick succession before the recovery of the first case, whether arising from a single focus or several foci in a neighborhood."

A *pandemic* is an epidemic covering a vast area of territory, perhaps the known globe, and involving great numbers of people. Influenza notably recurs as a pandemic, and the great pandemics of plague are especially impressed upon history. *Immunity and Susceptibility*.

The health of an organism implies that it is not merely able to cope with the ordinary unfavorable factors that surround it, but that it also has an adaptability to other and less common unfavorable conditions. There is, therefore, a certain amount of normal reserve power fortifying the organism, although to a limited extent, against unusual morbid influences. When this excess of resisting power is apparent, it is termed *immunity* or *insusceptibility*. Immunity is always spoken of in relation to a given morbid influence. Not only does it vary in amount in different animals, and in different members of the same species, but it also

varies in the same individual at different times; being modified by food, drugs, fatigue and other conditions. The successful prevention of disease depends upon the inhibition or restriction of the range of action of morbid factors, on the development of an immunity, or on the cooperation of these factors. If we consider health to be represented by a plus, and disease-producing conditions by a minus quantity, we may assume the possibility of adding immunity units, thus increasing the plus condition; or of adding minus morbid units, thus reducing or annulling the plus condition. As health factors we may mention nutritious food, pure air, and water, regulated exercise; as morbid factors we may indicate starvation, fatigue, grief and fear. Health will be maintained if the sum of immunity units exceeds that of the morbid factors.

Susceptibility or *predisposition* may be expressed as a great reduction, or absence of, the plus factors, while *immunity* indicates their relative excess. In the former condition, the action of a few morbid units will result in disease, while in the latter the active morbid factor may be large without any alteration in health.

Diathesis is a form of predisposition unusually inherited, characterized by a tendency to develop a certain disease at some period of life. It suggests that at some points the innate equilibrium of health is unstable. Thus, gouty diathesis, rheumatic diathesis, tuberculous diathesis, are terms indicating an apparent tendency of the possessors to develop gout, rheumatism or tuberculosis.

NOSOGENY.

In the *prevention* of disease it is necessary to take cognizance of the individual, not only before the onset, but also during the entire course of the malady. It is customary to divide the *development and progress of an infectious disease* into various stages, in each of which prophylaxis should play an important part; on the one hand, protecting the individual, and, on the other, the exposed community.

Exposure.—During the period in which the individual is exposed to the morbid agent, prophylaxis should be directed to combat the action of the causal factor and to develop in the tissues a condition of resistance or immunity. The former is exemplified in the measures of *disinfection*, the latter in the methods of *prophylactic inoculation* or *vaccination*. For the benefit of the community, it may also be wise to keep under *surveillance* or *detention* one known to have been exposed.

Infection and Incubation.—With the entrance of the causal agent of the disease into the body, prophylactic inoculation often becomes valueless; for the development of the artificial immunity is usually so long delayed that it is not manifest until the height of the disease. Moreover, vaccination may then be dangerous, by increasing the sum total of toxic material in the body. It is possible at times, however, to destroy the causal factors in the affected organism during the period of incubation. Thus, in localized infections, excision

or destruction of the focus of infection or the application of a parasiticide may prevent the development of the disease, or, again, the use of bactericidal serums or certain drugs may cause the dissolution of microorganisms that have entered the body. Thus, gonorrheal ophthalmia is avoided by the instillation of silver nitrate; septic wounds become antiseptic under antiseptic dressings; hydrophobia is said to be prevented from developing by the Pasteur inoculations; and malaria is arrested by the administration of quinine. If the disease be a very contagious one, *detention* is advisable during the period of incubation. Probably the danger of infection from the inoculated individual before the appearance of prodromal symptoms, with rare exceptions, as in diphtheria, is not great.

Prodromes and Invasion.—In certain diseases the measures just described may serve to abort the malady during its early manifestations. For example, in localized infections, complete incision, the application of germicides, or the employment of antitoxic and bactericidal serums, may cause a cessation of the disease. Neoplasms completely excised do not recur; the course of diphtheria or tetanus may be shortened by the use of the appropriate antitoxin.

Neurasthenia, melancholia and certain diathetic diseases, in their early stages, may be arrested; especially by careful regulation of diet, exercise and mode of life. From the period of development, if the disease be infectious or communicable, care should be taken by isolation, disinfection, and at times by quarantine, that the sick may not be a menace to their own or other communities. Patients suffering from certain mental affections, as paranoia, should be isolated for the protection of society; and this likewise, may be advisable to limit the spread of such communicable neuroses as hysteria and chorea.

Fastigium.—The disease having fully manifested itself, measures of prophylaxis to the individual give way to measures of treatment; but prophylaxis still has a part to play in protecting the community that environs the patient, and in many of the transmissible maladies protective measures having this end in view must be continued until the disease has entirely run its course, and, at times, for a period after recovery. Broadly speaking, prophylaxis also has a place in the prevention of *intercurrent affections* and *complications* during the course of the disease and in averting *relapses* or *sequels*. These phases of prevention, however, are usually considered in connection with the treatment of disease, and are beyond our present scope.

Termination.—Should the disease terminate in *death*, prophylaxis may still be required to prevent the body from becoming a source of danger to the living. It is thus evident that measures designed to prevent disease, although especially applicable before infection has taken place, and in the early stages, also have an important part to play during the entire course of the malady, and at times for a considerable period after its subsidence.

As has already been indicated, the essence of the

prevention of disease is included in the knowledge of its cause, and, therefore, it is difficult to carry out rational prophylactic measures without considering the *origin of disease*.

ETIOLOGY.

It is customary to divide the factors involved in the causation of disease into (a) *predisposing* or *remote*, and (b) *exciting, determining* or *immediate* causes. The former, lower the vital resistance and favor the action of the latter, yet they often act interchangeably; so that what at one time is a predisposing cause, at another becomes a determining factor. Trauma is usually classed as an exciting cause, yet it is a powerful predisposing factor to many infections. Depressing hygienic conditions may, on the one hand, favor the invasion of the tubercle bacillus, and, on the other, may determine the renewed activity of an old and latent tuberculous focus. Indeed, the time, the method of action, and the condition of the tissue acted upon, rather than the nature of the factor in question, determine whether a cause be predisposing or exciting. The germ, therefore, is no more important than the tissues it invades. Again, the exciting factor of one disease may predispose to the development of a second disease; as shown by the tendency to septic infection in alcoholics, and to tuberculosis in diabetics and lepers, and following measles. It is not possible, therefore, to sharply demarcate between predisposing and exciting factors.

Method of Action of Causal Factors.

Predisposing agents all act by diminishing resistance or increasing susceptibility, and their own action can easily be circumvented by maintaining or increasing the normal immunity of the individual. This, in large part, may be accomplished by observing the well-recognized rules of hygiene. The *exciting causes* of infection are the animal or vegetable parasites, and by the methods of *asepsis* and *disinfection* it is often possible to exclude them or to neutralize their action.

The causes of disease may come from without, and be *external* or *extrinsic*; or may arise within the organism, and be *internal* or *intrinsic*. The external causes are much better understood than those that are internal, and, therefore, it is mainly against extrinsic factors that prophylactic measures have been developed. It is obvious, however, that the ultimate origin of all factors of disease is extrinsic. Intrinsic factors of disease of this age express extrinsic influences that acted upon former generations. Thus, the son's neurotic tendencies result from the father's dissipations.

CHAPTER II.

THE INTRINSIC FACTORS OF DISEASE.

Age.

At the extremes of life, childhood and old age, there is the greatest predisposition to disease. Yet those diseases that are common in childhood do not usually affect the aged, and conversely. The

young in the lower animals show the greatest susceptibility to artificial infection, and clinical experience indicates that a similar condition as to certain infections exists in the human family. During the early months of life, however, there seems to be a lessened susceptibility to the eruptive fevers, and in the newborn the inoculation of vaccine virus may be without effect. Tuberculosis in

THE PROPORTION OF SICK AND DEFECTIVES TO AGE. MASSACHUSETTS, JUNE 1, 1890.—(Billings.)

Ages	Ratio per 1000.	
	Males	Females
15 to 25.....	9.74	6.90
25 to 35.....	12.38	8.84
35 to 45.....	21.80	13.11
45 to 55.....	57.14	21.76
55 to 65.....	71.17	34.19
65 and over.....	96.41	60.84

children is more often widespread and rapidly progressive than in the adult, and shows a predilection for the lymphatics, bones, joints, and serous membranes rather than the lungs, which, as a rule, are primarily affected in adults (Louis's law). Apart from tuberculosis, the diseases due to dietetic causes, and certain skin affections, nursing babes show an exemption from infection, probably because of their limited environment. Immediately following babyhood there is a special liability to contract measles, scarlatina, chickenpox, rubella, and pertussis. Typhoid fever does not usually occur until youth or early adult life. Nervous reactions are more marked in early life, as is indicated by the tendency to chorea and the appearance of convulsive disorders from comparatively slight causes, while in the aged severe diseases often excite little reaction. If the adult has not an inherent immunity to the common exanthemata, he has usually acquired it by having had an attack during childhood or youth. He is now, however, exposed to the diseases incident to occupation and dissipation. After thirty-five years predisposition to carcinoma, especially in certain persons, appears; and as age creeps on, the degenerative changes in the organs, especially the forms of arterio sclerosis involving the heart and blood-vessels, together with their secondary effects, such as hemiplegia, aneurism, and senile gangrene, are common, as are also gouty and rheumatic affections; there is an increased tendency to insanity; and pneumonia is so common in the aged as to have been described as the "natural end of old men."

THE RELATION OF AGE TO THE FATALITY OF DISEASES. COMPILED FROM THE RECORDS OF EIGHTEEN HOSPITALS, FOR FIFTEEN YEARS.—(Modified from Billings.)

Ages	Rate per 100 cases.			
	Pneumonia	Typhoid Fever	Consumption	Diphtheria
0-10.....	10.8	8.2	46.5	57.9
10-20.....	8.2	12.0	46.3	22.3
20-30.....	15.3	17.0	48.8	10.2
30-40.....	22.0	25.2	55.4	
40-50.....	30.2	33.5	57.7	
50-60.....	40.3	40.6	59.1	
60.....	57.1	65.6	62.8	

Despite the dangers incident to pregnancy, the death rate of women is usually less, and the expect-

tation of life greater, than with men. This probably is due largely to the fact that men are more exposed to dissipation and accident, and are more commonly engaged in unhygienic occupations. Up to the fifteenth year the difference between the sexes as to morbidity and mortality is not strikingly apparent, but thereafter there is a marked preponderance among males of certain diseases, such as alcoholism and other forms of poisoning, typhoid fever, rheumatism, urinary and venereal diseases, and scleroses of various organs, including the liver, kidneys, and central nervous system. Forms of anemia, cancer, peritonitis, and intrapelvic tumors having their origin in the sexual organs, are much more common in women. During pregnancy existing tuberculous affections may be arrested, but following labor the disease may follow a rapid, progressive course. Pregnancy is associated with an increased resistance to many poisons, as is exemplified by the comparative safety of chloroform anesthesia during labor. The menopause or the menstrual periods may be associated with attacks of nervous disorders, of erysipelas or other infection. Certain general diseases are chiefly manifest in men, as is hemophilia, or bleeder's disease, while osteomalacia usually affects women.

Race.

Racial types of immunity and predisposition to particular diseases have been observed both in the lower animals and in man. In animals the striking difference in the resistance to bacteria shown by the white mouse and field-mouse is particularly impressive. In the human race the freedom of the Japanese from scarlet fever, the immunity of the Chinese against cholera, and of the negro against malaria and yellow fever, are examples. On the other hand, measles and some of the other exanthemata that are mild in civilized races have a high mortality when they afflict certain of the savage types. Thus, in the epidemic of measles in the Fiji Islands in 1875, it caused the death of over one-fourth of the population. The Jew shows a special predisposition to diabetes, although he seems to possess a greater immunity than others against tuberculosis and other infectious diseases. Races accustomed to the more primitive modes of life are apt to succumb quickly to tuberculosis when brought under the influence of civilization; a fact frequently exemplified among civilized Indians and negroes, and especially among Eskimos brought to more civilized countries. A related form of immunity is that which is developed by the repeated exposure during urban life to certain diseases. Thus, few city dwellers reach adolescence without having had, or having been exposed to, diphtheria, scarlet fever, measles, or whooping-cough, and it is, therefore, not strange that in military camp regiments show a comparative immunity from these diseases while regiments composed of men from the country are, in general, susceptible. The immunity of the negro against yellow fever and malaria may have a similar basis, or be due to unrecognized infection during infancy.

Nervous Influences.

It is impossible to disassociate physical lesions from changes in the central nervous system. Lesions of one part of the body may, by nervous reflex, originate morbid changes in a distant part. Thus, chilling of one hand will reduce the temperature of the other; cutaneous irritations reflexly affect the kidneys and modify the output of urea. In turn, nervous impairments may originate structural and functional disorders. In the hypnotic state, erythema and even vesiculation of the skin have been induced by suggestion. Fear, grief, anxiety, exhaustion, rage, terror, gloom, inordinate ambition, great joy, and other mental perturbations may manifest themselves by such functional changes as blanching of the skin, polyuria, glycosuria, vomiting, syncope, diarrhea, convulsions and shock. In a number of the personages of history, since the time of Sophocles and Ananias, sudden death has followed *mental shock*. There is much clinical evidence that emotional excitement increases the susceptibility to infectious diseases as well as to melancholia and other mental disorders. Certain neurotic conditions are transmitted by imitation. Hysteria, neurasthenia, chorea, tetany and even epileptic attacks have originated from the mental impression produced by seeing an affected person. Alterations of the normal trophic mechanism may cause the development of poisonous products within the body; for example, the milk secreted by mothers immediately after severe fright may be highly toxic. Reflex muscular atrophy in excess of that due to disuse occurs in the muscles about the diseased joint. Mental impressions may produce dyschromias, as in cases of bleaching of the hair following grief or nervous shock. A similar condition may occur from neuritis, and the vesiculation and ulceration in herpes are usually attributed to changes in the nerve-trunks. The appearance of hepatic glycogen in the blood, and its excretion in the urine, are well-known results of injuries to a certain portion of the medulla oblongata, and may also follow prolonged mental strain.

The avoidance of injurious, and the employment of helpful psychic influences, play no mean part in the prevention of disease and in the correction of morbid conditions. It is to be regretted that present materialistic tendencies cause them so often to be overlooked or ignored except by charlatans.

HEREDITY AND DISEASE.

Abnormalities in the organism previous to birth may be the result of any one of a number of factors. First, the *germ-plasm* of the fertilized ovum may have acquired, from either paternal or maternal source, modifications of normal developmental tendencies or of structure, leading to disease of the embryo. Such abnormalities may be upon the side of deficiency or on the side of excess. For example, the germ-cells may be impressed with excessive vegetative tendencies leading to gigantism or local hypertrophies, and such functional hyperactivities as result in epilepsy,

neuralgias, etc.; while if the inherent developmental tendencies be insufficient, dwarfing, cleft palate, harelip, web fingers and other imperfections may result. Or, if the inherent functional activities be too feeble, idiocy, insanity, forms of neuroses and similar disorders may occur. These conditions, transmitted from parent to offspring in the germ-plasm, constitute true *hereditary disease*. The term heredity, however, is often misapplied to morbid conditions that have been acquired by the embryo through various *accidental* factors in its prenatal environment. Thus, the fetus is not exempt from mechanical injury from without, and its motility in the uterine cavity may produce twists and knots in the umbilical cord, or otherwise result in its own harm. Monstrosities have been artificially produced by mechanical interference during gestation.

Should the mother's blood contain *toxic* material, the result of disease or from ingested poison, a portion of this will usually pass into the fetal circulation. In the fetus, the proportion is always less than that in the maternal blood; and as the toxic substance must pass through the fetal liver before reaching the organs of the embryo, a part of the poison is destroyed, so that the fetus is usually much less affected than the mother. For this reason the fetus may for a number of minutes survive the death of the mother. In the lower animals the fetus has been found much less vulnerable to certain poisons than is the mother; so that it may live after the injection of a poison into its own tissues, while the mother dies from absorbing toxic substances through the placenta. From material toxemias, the fetus may have its tissues so impoverished that its development is imperfect. Thus, it has been found possible to produce monstrosities by the use of certain chemical measures, while hypoplasia of the circulatory and reproductive systems is not uncommon in children of parents with tuberculosis or other debilitating disease.

Finally, direct *infection* may take place through the placenta. Children have been born with the eruption of smallpox or measles, and with lesions of syphilis, pneumonia, tuberculosis and other diseases acquired during the latter months of pregnancy. As it seems improbable that a true infection can occur in the germ-plasm, these affections are to be considered as arising from causes extrinsic to the fetus, even though present in the maternal tissues; and thus, although congenital, they are not to be considered as true hereditary diseases. They evidently originate by the passage of pathogenic bacteria through the placenta.

A *congenital disease* is an abnormality existing at birth; and, therefore, may be caused by any modification of the developing ovum from the time of impregnation to the completion of labor. Such congenital conditions include intrauterine fractures, dislocations, amputations and specific diseases that are contracted through the placenta, or during the parturition. Congenital diseases may or may not be hereditary.

Hereditary may be *immediate*, as when the disease is also active in the parent; or it may be

remote, as when the disease is latent in the parent, although active in some progenitor. In hæmophilia, the mother who transmits the defect is herself usually free from it; while the male members of the family suffer from bleeder's disease, but usually do not transmit it to their offspring. Criminals, idiots, and the insane may show in their physical conformation a resemblance to a lower race or even to the higher. This has been considered as a reversion to a more primitive type, or a very remote form of heredity and is termed *atavism*. Acromegaly has been similarly explained.

True heredity is the transmission of the disease itself. The condition existing when only the predisposition or tendency to develop a disease is passed on by parent to the child has been called *false heredity*. Such a condition may not manifest itself for many years after birth. Syphilitic keratitis often develops about the fifteenth or sixteenth year in children otherwise healthy, and yet absolutely indicates the transmission to the child of a germ-plasm modified by syphilis. Tuberculosis may develop in a number of the members of the same family about the period of adolescence, apparently from the hereditary transmission of a susceptible germ-plasm.

The Transmission of the Infectious Diseases through the Placenta.

That infectious organisms may pass through the uterine sinuses into the placental circulation, and so reach the fetus, has been demonstrated by the presence of smallpox and other infectious diseases in children at birth, and also by laboratory experimentation. This, however, is uncommon in nature. More frequently a disease in the mother gives rise to modifications in the embryo leading to immunity, and, conversely, an infected child in certain cases seems to give rise to a condition of immunity rather than of infection in the mother, and Lingard's experimental infection of rabbit fetuses in utero with anthrax were usually followed by immunity of the mother. This is especially demonstrated in syphilis, in which the nonsyphilitic child born of a syphilitic mother cannot be infected from nursing its diseased parent, although the child of another may readily contract the disease from this mother (*Profeta's law*.) Conversely, a child with congenital syphilis, born of a healthy woman, usually will not infect its own mother, although it will infect a wet-nurse or other person exposed to certain of its secretions (*Colles' law*). These facts suggest that intrauterine infections and modifications of the fetus are more frequent and more important than conditions of true inheritance of disease. Indeed, Weissmann contended that acquired characteristics are not, and cannot be, transmitted to the offspring. While this view is not tenable, and has constant refutation in the bacteriologic laboratory, it expresses a measure of the truth, inasmuch as mutilations as well as acquired diseases are rarely transmitted, even in the form of a predisposition.

Lateral Chain Theory of Heredity. Adami has recently suggested an hypothesis to explain inheritance, resembling Ehrlich's *lateral chain theory* of immunity. He assumes that the *idioplasm*, by which is meant that portion of the protoplasm possessing vital properties, is composed of a mass of molecules that form a central ring to or from which side rings may be attached or detached without alteration of this primitive centre. Environment causes the central ring to have attached certain side-chain combinations, and in this way the modifications of tissue cells are consummated. In the same way environmental form of new side-chain combinations. Those lateral chains that are last developed are the least stable and the most readily lost, while those that have been attached for a long period of time are not readily loosened. Thus it is that recent changes in structure, or alterations of environment, produce with the germinal idioplasm combinations too weak to be transmitted, while lateral chains that have been active for generations tend to persist. In sexual conjugation, idioplasms with different lateral chain combinations and affinities unite, and there results an idioplasm not possessing the identical properties of either parent, but modified in character and constitution toward the constitution of either one or the other, according to the preponderance in number or chemical activity of the paternal or maternal molecules entering into combination. This hypothesis explains the transmission of a predisposition or a physical abnormality. The transmission may be by intoxication, the intoxication being represented by a combination of toxiferous molecules with the idioplasm, that is transmitted to the offspring. Parasyphilitic lesions in the offspring of the syphilitic are explained as a result of the transmission of an idioplasm chemically altered through parental infection.

Consanguineous marriages and inbreeding are dangerous from their tendency to accentuate family weaknesses. This risk increases with the deviation from the normal of those concerned. While the marriage of near relatives would not be unwise in the absence of family weaknesses, few civilized families are so fortunate. On the other hand, there is equal risk in marriage between persons having no known kinship of the same social class or inheriting similar morbid tendencies. Sterility, deaf-mutism, pigmentary retinitis or various physical malformations often follow consanguineous marriages. Those exceptionally intelligent or possessing genius are usually unequally developed, and if their intermarriage is not followed by sterility their weaker rather than their stronger qualities are likely to be transmitted to their offspring in the form of mental degeneration, idiocy or insanity. Conversely, genius is more apt to spring from parents of mediocre intelligence than from the gifted. Fortunately the law of natural selection promotes the union of the unlike and constantly tends to maintain an equilibrium. Susceptibility to disease or defective development in the offspring may result from existing disease or dystrophia in one or both parents,

such as tuberculosis, syphilis, carcinoma, grave anemia, or the results of prolonged dissipation. Fournier studied the progeny following forty-three marriages in which either husband or wife had inherited syphilis. From the 143 pregnancies that followed, there were 43 abortions, 39 still births, and of the remaining children many showed stigmata of degeneration, dystrophia, or defects in physical development. From this it is evident that syphilis may leave as marked an impress upon the second generation as upon the first, and it is probable that the baneful effects are also continued to the third and fourth generations.

Youth or senility, and great disparity in ages of the parents also unfavorably influence the offspring, as may too rapidly repeated pregnancies.

Chronic intoxication in the parent as from alcohol, opium, lead, mercury or other poison may result in defective offspring, or if of sufficient degree, in sterility. Nervous and mental disorders are prone to be exaggerated by heredity. It is to be remembered that to the general tendency of heredity exceptions are not infrequent.

ABNORMALITIES OF DEVELOPMENT.

The complicated differentiation of cells and growth of tissue following the fecundation of the ovum may favor the production of abnormalities. These are usually congenital rather than hereditary, and may develop after, as well as during, intrauterine life. Indeed, the developmental changes may occur after adolescence, as is seen in *acromegaly*, in which overgrowth of the face, feet and hands may begin at thirty or forty years and continue indefinitely. These abnormalities may be classed under excesses, deficiencies and perversions of development.

Excessive Development.

A general excess of development produces the so-called giants. These persons usually show diminished powers of resistance when compared with those of mean stature, and rarely are symmetric. Local excesses in development may occur from the increased functioning of a part of the body, as in hypertrophy of the heart from valvular disease; or from some obscure cause, possibly at times associated with disease of certain glandular organs—as in *acromegaly*, in which lesions of the pituitary gland are often found.

Deficient Development.

Dwarfing is a result of the general failure of the organism to reach its proper size. As with giants, dwarfs are rarely symmetric beings, nor are they endowed with the average stamina. The failures of tissues, organs, or members to reach their normal size are more common, and are termed *hypoplasias*. These conditions are often the result of deficient or abnormal use as well as of imperfect development. In chlorotic girls the cardiovascular and genital organs may remain infantile in type. Defective intrauterine development

not infrequently produces marked abnormalities of the organism in children, as illustrated by the cleft palate and harelip that result from the failure of certain branchial clefts to close. Patulous urachus, exstrophy of the bladder, atresia of the anus, web fingers, delayed descent of the testicle, hermaphroditism, and similar conditions result from defective intrauterine development. If a member be lacking, the condition is called *aplasia*; it is exemplified in many forms of fetal monstrosities, as the headless (*acephalus*) and limbless (*amelus*) monsters.

Perverted Development.

There may also be displacements of contiguous members, as exemplified by cases of transposition of the viscera, or of blastodermic cells. To the latter is ascribed the formation of incomplete monsters or the presence of one organism within another (*inclusio fetus in fetu*) and the formation of certain tumors (*dermoids*).

Organs or parts of the body may be duplicated, as is shown in cases of double aortas, double vaginas, and *supernumerary parts*, especially fingers (*polydactylism*) and spleens.

The *prevention* of the congenital abnormalities of development is largely included in measures aimed to improve the social fabric, especially those that directly influence procreation. The importance of laws and educational training to prevent or regulate the marriage of the aged, the very young, the dissipated, the diseased; of criminals, degenerates, defectives and insane is sufficiently obvious, yet often difficult in application. In many of the United States the influence of consanguinity has led to laws that render the marriage of first cousins illegal. Proof of the health of the persons concerned should accompany application for the marriage license.

AUTOINTOXICATION.

Autointoxication is the condition that results when compounds formed by the organism react injuriously against it. The term has been broadly applied to include infectious and putrefactive processes, the result of bacterial action within the intestinal canal or the tissues, conditions that cannot be properly considered as self-intoxications.

1. *Faulty Elimination.*—Normal excrementitious products are sometimes retained within the body. Such a condition apparently occurs in uremia from excretory insufficiency of the renal cells. The suppression of perspiration, by coating the body-surface with an impermeable material, may produce sufficient retention of toxic substances to cause death. In certain conditions, normal emunctories may be insufficient to carry off an abnormal excess of effete products.

2. *Incomplete Chemical Transformation.*—The cellular nuclein seems normally to be converted into certain intermediate products, as xanthin, hypoxanthin and adenin, before its final oxidation into uric acid and urea. Such an oxidation being incomplete, the process may be arrested

at any one of the intermediate stages, with the result that a substance much more toxic than uric acid is thrown upon the system. Horbaszewski's theory of gout is based upon this supposition. Injections of hypoxanthin and xanthin for a period of several months have been found to produce in animals granular degeneration of the epithelial cells of the kidney resembling that found in lead-poisoning. This degeneration did not follow when repeated injections of pure urea were substituted. The imperfect decomposition of acetone in the body is common in diabetics. Incomplete chemical transformation may be the result of:

(a) *Deficient glandular secretion*; as apparently occurs in pancreatic diabetes, in myxedema and Addison's disease, the result of extirpation or disease of the pancreas, thyroid gland or adrenals. Castration in early life prevents the development of masculine parts.

(b) *Excessive or perverted glandular secretion.* This apparently occurs in exophthalmic goiter from excessive and possibly perverted, action of the thyroid gland.

(c) *Irregular absorption of products of digestion.* Normally, albumoses and peptones that are formed in the intestinal canal are reconverted into albumins before they enter the blood. Under certain conditions of faulty absorption, albumoses, peptones and perhaps other compounds resulting from digestive action, may enter the blood unchanged and produce decided toxic effects. Through certain disorders of the liver hepatic glycogen may pass into the blood and urine or the ingestion of sugars may be followed by glycosuria.

If the liver be shut out of the general circulation by an Eck's fistula (connecting the portal vein with the inferior vena cava), the ingestion of meats is followed by pronounced nervous disturbance and even death; resembling the symptoms produced when ammonium carbamate is introduced into the circulation. This salt appears to be a final product of tissue oxidation, and is converted by the liver into urea, in which form it is excreted by the kidneys. Chittenden considers it probable that uremia results from the retention of untransformed carbonic acid. Moreover, the liver has an important role in neutralizing absorbed poisonous compounds, and auto-intoxication resulting from hepatic insufficiency has been ascribed to be the cause of icterus gravis.

Alterations in innervation may greatly modify the activities of organs and lead to the formation of toxic compounds. Thus, mental emotion may render the milk toxic and the urinary toxicity may be increased by emotion or before an epileptic attack.

Acid Intoxications.

In a number of more or less obscure metabolic disorders there are freed from the fats or proteids of the body, acids abnormal in kind and quantity that may induce severe toxic phenomena. These include B-oxybuteric acid, its derivative diacetic acid, which are believed to cause diabetic and cer-

tain related forms of coma, lactic acid, sarcolactic acid, uric acid and other acids, excessive amounts of which may occur in the blood in rheumatism, gout and other disorders.

LEUCOMAINS.

Leucomains are basic chemical compounds, closely resembling the vegetable alkaloids, that are produced by the metabolic activities of the organism. It is difficult to differentiate them sharply from ptomains and similar compounds resulting from bacterial action, and it is not improbable that certain substances that have been extracted from tissues, and at present are believed to be leucomains, may in time prove to be bacterial products. A number of the leucomains are found not only in the human tissues, but may also be obtained from the lower animals, from the higher plants and from yeasts. From their chemical relations they have been divided into two groups, the *nucleinic* or *alloxuric* leucomains, and the *creatinic* leucomains.

The Nucleinic Leucomains.

Many of the leucomains seem to be derivatives of an important constituent of the nucleus of cells, called nuclein. In nephritis there is a diminution in the amount of nucleinic bases excreted in the urine; in leukemia it is much increased. Kossel and his pupils have shown that nuclein, upon the addition of water or dilute acid, may be decomposed into a number of important leucomains, including *adenin* (amidopurin), $C_5H_5N_3$, *guanin*, $C_5H_5N_5O$, *hypoxanthin*, $C_5H_4N_4O$ (sarkin), and *xanthin*, $C_5H_4N_4O_2$. These are closely related to uric acid, and have been termed *xanthin*, *alloxin* or *purin bases*. Cynogen is shown in the chemical formula of nuclein and of its derivatives, but the reason for its intimate relation with the nuclein molecule is not understood. As a rule these are whitish, amorphous, crystalline solids, forming neutral solutions in water, in which they are slightly soluble. They are insoluble, or but slightly soluble, in ether, and have variable, but usually feeble, combining powers with alkalis and acids. Our knowledge of these leucomains is as yet very incomplete, and their relation to human pathology at present is largely conjectural. It is assumed that they are derived from a hypothetical substance, *purin*, $C_5H_4N_4$.

The Creatinic Leucomains.

These are closely related to the nucleinic bases, but show a chemical construction of a somewhat different type. They may be derived from muscular tissue and on decomposition they yield urea.

Creatin, $N(CH_3).CH_2.COOH$, which gives the name to the group, is derived from the muscle albumins of vertebrates, and occurs in the brain, thyroid gland, blood and urine.

Other creatinic leucomains are *creatinin*, $N(CH_3).CH_2.CO$, the anhydrid of creatin, *arginin*, $C_6H_{13}N_3O_2$, and *lysatinin*, $C_6H_{11}N_3O$.

Gautier has studied the leucomains found in fresh muscles, and has isolated a number of compounds, some of which are said to be intensely toxic. Little is definitely known of these latter, and the work requires amplification and corroboration. They include *crusocreatinin*, $C_5H_8N_4O$, which is closely related to creatin, and *xanthocreatinin*, $C_5H_{10}N_4O$, which is the most deadly of muscle leucomains. This produces in animals depression, somnolence, vomiting and diarrhea. It was found by Moroni in the muscles of an exhausted dog and in the urine of fatigued soldiers. It possibly has something to do with the subjective sensations of fatigue.

It is claimed by Gautier that leucomains are constantly being formed in the animal tissues and destroyed by oxidation. If not destroyed, poisonous effects may result.

CHAPTER III.

PHYSICAL.

THE EXTRINSIC FACTORS OF DISEASE.

Abnormal functional and structural alterations originating from agencies without the body are due to either physical or toxic agents, acting alone or in combination. They may be *unorganized*, as are all physical causes and the inorganic poisons; or *organized*, as are the vegetable and animal parasites and the poisons of vegetable or animal origin, and may act as predisposing or exciting factors of disease.

PHYSICAL CAUSES.

While properly all physical agencies play an important part in the maintenance of health, each may aid the induction of disease. Thus, mechanical violence, heat, cold, electricity, X-rays, atmospheric alterations, meteorologic and telluric conditions, may have an important action in the genesis of certain affections.

Mechanical Violence.

Mechanical agents include all forces that tend to change the condition of inertia of the whole or part of the body. If the excitation merely cause increased activity of a part, a true development or *hypertrophy* will usual follow; or if the activity become excessive, exhaustion may lead to *atrophy*. Frequently repeated or continuous slight irritations lead to overgrowth of tissue, or hyperplasia. Callosities developing upon the hands and corns upon the feet are examples of this condition. Inhalation of insoluble gritty particles are followed by fibroid changes in the lungs of coal-miners, grinders and polishers. In such conditions irritations may play an important part in predisposing to infection by the tubercle bacillus, the pneumococcus and other organisms. Continued pressure, if it be sufficient to interfere with

the circulation in a part, may cause wasting, necrosis, or even gangrene.

Trauma or the abrupt application of mechanical violence may cause the disruption of tissues and the production of contusions, incised and lacerated wounds. Such a mechanical lesion expresses the result of a conflict between kinetic energy and resistance. The character of the injury may be the same whether the body-surface is the resisting force or the moving object. A blow may produce a lesion identical with that caused by a fall against a resisting substance. The result of mechanical violence depends upon the energy, the method of application of the force, and the character of the resistance. As the energy of a force is equal to one-half of the product of its mass into the square of its velocity, velocity is much more important than mass. The higher the velocity, the more strictly the injury is localized to the area of contact, and the greater is the destruction within this area. Bodies of low velocity that fail to traverse the tissues may have their energy entirely transmitted to the organism with which they come in contact, leading to more serious injury than that produced by bodies of greater velocity and force. High velocities give wounds of a clean-cut character; at lower velocities the tissues are pushed ahead and to the side of the moving object, so that the area of destruction progressively increases as the tissues are penetrated. For this reason the wound of exit is much larger than that of entrance.

Other things being equal, the character of injury varies greatly with the area of application. A force behind the keen edge of a knife may produce an incision with a minimum of tissue destruction, but with free hemorrhage. Blunt the cutting edge, and the area of tissue destruction widens. The hemorrhage is slightly less, and we have a slightly burised, torn, or contused wound. Broaden the edge of the instrument still more, and the contusion effect is more pronounced, but the depth of the injury lessened. Apply the same force over a broader surface, and a bruise or contusion, characterized by rupture of subcutaneous vessels, tissue filaments, and extravasations, occurs without any break in the skin. Apply the same energy over a much broader area, and the force may be so diffused that no injury results. Obliquity of action also decreases the destructive efficiency of mechanical energy.

The lesion produced by an incised wound, a contused wound, or a bruise may take its essential character from conditions within as well as those without the body. Thus, a sharp bony prominence may produce an incised wound of the tissues over it, when these come in contact with a plane surface, resembling an injury produced by a sharp instrument striking tissues over a plane bony surface. The force may be transmitted from the point struck and focus upon a distant area, where the chief lesion is found, as in fractures of the skull by *counterstroke*. The effects of mechanical violence vary with the function of the tissues injured.

Mechanical energy may be transmitted by

gases and liquids as well as by solid substances. Thus, the terrible rending effects of violent explosives are produced directly by the enormous pressure of liberated gas; while explosive effects may follow the entrance of bullets into cavities that have rigid walls and liquid contents. The delicate nerve tissues may be severely injured by violent agitations or commotions, as in *commotio cerebri*.

General Effects.—Besides local lesions, severe *general effects* may result from local injury. The absorption of fibrin ferment or other substances from clean wounds may produce fever. Infected or poisonous wounds lead to general toxic changes. Mechanical violence may cause a general depression of bodily functions resulting in shock, fainting, delirium, maniacal excitement, or, at times, more permanent nervous lesions, such as hysteria, chorea, paralysis agitans and epilepsy.

Relation of Mechanical Injury to Infection.—Trauma has a very important bearing upon a number of *infectious processes*. Not only do open wounds afford a field for infection, but the growth and increase of virulence of certain pathogenic bacteria are favored by condensation and devitalization of the tissues. Besides this, injured tissues may, by permitting the growth of saprophytes, lead to the absorption of ptomains and the condition of so-called *sapremia*. The liability of inexperienced surgeons to have suppuration in their wounds is probably often due to partial devitalization of tissues from excessive handling and to anemia produced by too tightly drawn sutures, conditions that facilitate infection by microorganisms unable to invade tissues of undiminished vitality. Trauma seems often to determine the *localization* of circulating infectious particles, and experimentally it has been found that when tubercle bacilli are injected into the circulation of animals whose bones are contused, the tuberculous process often starts at the seat of injury. This also is illustrated in children in whom tuberculosis of the bones and joints often dates from a fall or blow. Local irritation is a predisposing factor in the determination of certain *tumors*, as carcinoma, and is believed to explain the position of epithelioma of the lower lip in clay-pipe smokers, of cancer of the scrotum in chimney-sweeps and in tar and paraffin workers, and of epithelioma of the cervix in multipara.

Heat.

The body is able to compensate for rises in temperature by increased evaporation of water. The respiration and heart action are hastened and the perspiration is increased. If the temperature exceeds 55° C. (130° F.), the normal heat-reducing mechanism becomes insufficient, and life is no longer possible, although for short periods of time temperatures of even 250° C. (400° F.) may by dry radiation be applied without injury to portions of the body. The exposure of the body to moderate increases in temperature leads to dilatation of the blood vessels and favors certain forms of infection. Thus, "taking cold" expresses an infection often the result of a *reduced*

immunity due to overheating. More pronounced exposures to moderately high temperatures, especially when affecting the feeble, dissipated or fatigued, may lead to grave affections of the nervous system, known as insolation, heat exhaustion or thermic fever.

In cases of heat exhaustion the thermogenic centers are not involved, while in thermic fever there is marked hyper-pyrexia due to an inhibitory paralysis of the heat centers. Serious and even fatal degenerative changes in the neurons may result from the high temperature. Heat stroke may be followed by a permanent increased susceptibility to heat, characterized by vertigo, headache, digestive disorders or other symptoms on exposure to the direct rays of the sun or to high temperatures. More serious are forms of mental degeneration, epilepsy, general paralysis, mania, melancholia or idiocy that at times follows insolation. Often these serious results are to be taken as latent inherited weaknesses that have been precipitated by the high temperature.

Local Effects of Heat.—The local application of heat may result in (1) hyperemia, (2) extravasation of blood-serum with solution of certain cells (vesication), (3) coagulation of protoplasm (necrosis), (4) more or less complete oxidation or incineration. Thus, burns of the first, second, third and fourth degrees are differentiated. The local effects of heat are followed by certain systemic alterations that may be partly due to increased tissue waste, to retained or newly absorbed toxic products, or to bacterial invasion. Besides this, the suspension of function of important secretory or excretory organs may seriously affect the general system. Thus, it is found that localized burns, even though deep, are less serious than widespread superficial ones. In the latter case there may be destruction of the corpuscles of the blood (hemolysis), thrombosis and edemas, especially of the nervous system, and localized necroses in the internal organs. There is an increased destruction of albuminous substances in the body and a diminished elimination of carbon dioxide, with a tendency to fatty degenerations in the parenchymatous organs.

The Effects of Cold.

Moderate general or local cooling of the body has a powerful action in *increasing susceptibility* to many infections. Examples of this are seen in the common "colds," forms of pneumonia, nephritis, and enteritis following the chilling of the body-surface. After the *local* application of cold there is a hyperemia, but if the temperature of the tissues be markedly reduced, this is succeeded by a marked contraction of the blood vessels and anemia; until finally, when the tissues become frozen, they are dry and bloodless.

A part may be frozen for a brief period of time without especial injury. Upon thawing, an intense hyperemia succeeds the anemia, and may lead to rupture of blood vessels, thromboses, and extravasations into the tissues. For this reason the rapid warming of a frozen part is fraught with great danger. After prolonged freezing the

cells fail to regain their functions upon the restoration of the normal temperature, the blood does not enter the involved area, and local death results. It is, therefore, possible to have a local necrosis directly from the cold itself, or from the secondary hyperemia and exudations following the exposure.

Lowering of the temperature of the *entire body* results in a diminished irritability of protoplasm, especially that of the nervous system, and finally death from the paralysis of vital centers. As the central nervous system is affected last, the serious nervous and mental sequels to heat stroke are not apt to follow exposure to cold.

Electricity.

Within certain limits, continuous, interrupted or alternating currents entering the body directly, through various conducting media, or by induction, produce structural and metabolic alterations. Effects result from the electric current directly from chemical compounds produced by *electrolytic action*, or from the transformation of the current into heat or other forms of energy. The effects vary with the character of the current, the amperage, the electromotive force, and the resistance of the tissues.

The human body offers a constant minimum resistance of about 3,000 ohms to the passage of electric currents. The resistance of the epidermis, especially if it be thick and dry, is marked, while the nervous tissues are comparatively good electric conductors. The intensity of the current is equal to the electromotive force (having as its unit the volt) divided by the resistance. The effects produced vary with the thoroughness of contact with the electric conductor and the thickness, dryness or moistness of the skin. The effect is also intensified by the passage of the current through the ground. As a rule, the alternating are more dangerous than the continuous currents, for in an alternating current of 500 volts the oscillation produces a difference in current potential equal to 1,000 volts. Alternating currents produce a minimum of electrolytic disassociation in the tissues, the alternations causing opposite chemical actions that tend to neutralize each other.

The effects of *sinusoidal currents* vary with the rapidity of the interruptions. Above 5,000 alternations a second, currents of many thousand volts may pass through the body without discomfort; while, should the number of alternations drop to between 200 to 500 in a second, death would result.

Electricity may *cause death* by the depression of vital centers, by local tissue destruction, or, according to d'Arsonval, by the heat produced by excessive muscular contraction.

Lightning stroke is most frequent in rural districts, where there are few facilities for the dissemination of the force. It frequently strikes a lone tree or other isolated conducting agent. Lightning may cause peculiar, dendritic, hyperemic lines on the skin.

(To be Continued.)

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW-YORK, FEBRUARY, 1903

No. 2

ORIGINAL ARTICLES.

HOOKWORM DISEASE (UNCINARIASIS)—A NEWLY RECOGNIZED FACTOR IN AMERICAN ANEMIAS.

BY CHARLES WARDELL STILES, PH.D.,
Washington, D. C.

Zoologist, U. S. Public Health and Marine-Hospital Service.

The following is an abstract of the Third Annual Address of the Brooklyn Medical Club, delivered at the Medical Society of the County of Kings Library Building, in Brooklyn, January 17, 1903. Dr. Stiles first gave a general review of the hookworms, including their history, systematic position, anatomy, and life-cycle. This was followed by a brief historical review of hookworm disease. He then gave an account of his recent trip from Washington, D. C., to Ocala, Fla., with a general summary of his observations in the Richmond penitentiary, and in the copper mines, coal mines, gold mines, brickyards, plantations, farms, orphan asylums, schools, and cotton mills of the district, which he visited in the Southern Atlantic States during the course of his investigations. Turning then to the medical side of the subject he said in substance:

Relation of Soil to Anemia.—As we proceed south from Virginia to Florida we notice that anemia increases. This anemia may be divided into two general classes in particular, each class being typical of a certain kind of soil. One anemia is due to a blood infection of malarial nature, and this is found especially on the more impervious soils, as in Albany, in the southwestern part of Georgia; the other anemia is due to an intestinal infection of hookworms, belonging to the species *Uncinaria americana*, and this is preëminently a disease of the sand areas, as is seen, for instance, at Waycross, in the southeastern part of Georgia, where there are about 20 cases of hookworm disease to one case of malaria; when we reach a district with a sandy top soil and a more impervious subsoil, as at Willacoochee, Coffee County, between Albany and Waycross, we find both diseases prevalent.

The reason for this regional frequency of the diseases in question is at present clear in part only, namely: In regions of clay top or subsoil the natural breeding-places of *Anopheles* will increase in number and persist longer than in sandy regions, hence, with an initial infection of malaria the disease will spread. The relation of uncinariasis to the sand is not quite so clear, but I will endeavor to explain this point, at least in part, later in the evening.

UNCINARIASIS.

Cause.—Uncinariasis or hookworm disease is primarily a disease of warmer climates. In the Old World it is caused by a parasitic worm known as *Uncinaria duodenalis* (*Agchylostoma duodenale*), which was described by Dubini in 1843. Aside from a few, chiefly imported, cases, our American disease is caused by a totally distinct parasite, known as *Uncinaria americana*, which I described last May. The parasites live in the small intestine and suck the blood of their victims. They are in fact blood suckers of the worst type. One factor in the production of the disease is, therefore, a loss of blood to the parasite. In addition, minute hemorrhages occur from the wounds made by the worms. Further, these wounds form points of attack for bacteria. Next, the intestinal wall thickens and its digesting surface is decreased. Finally, the parasites apparently produce a poisonous substance. Thus different factors are involved in producing the symptoms noticed.

Eggs; diagnosis by fecal examination.—The eggs are laid by the female and are discharged in great numbers in the stools of the patients, a fact which gives us an excellent method of positive diagnosis, namely, a microscopic examination of the feces. Not every physician, however, owns a microscope; but I have found a substitute test which can be made by any person and in which the error is probably not over 20 or 30 per cent. in medium and severe infections. In perhaps 8 out of 10 cases of such infections, the stools are reddish brown, and if a portion is placed on a piece of white blotting paper for 20 to 60 minutes and then removed, a distinct red, blood-like stain is noticed. In this test, it is assumed that we have before us a case of anemia not suffering from piles.

Development direct.—About 24 hours after the egg is discharged in the stools, a rhabditiform embryo develops; this sheds its skin after about 48 hours; then about 5 days later it undergoes a second shedding and becomes a so-called "encysted larva"; it has now reached the infecting stage and no longer takes food until it gains access to a host, after which it sheds its skin a third and a fourth time and becomes adult.

Relation of sand to uncinariasis.—Returning

now to the relation of uncinariasis to the sand, I would suggest that when the embryo or the larva leaves the feces and enters the ground, he stands a much greater chance of gaining access to surface wells in a sandy soil than in a clay soil; again, when he sinks just below the surface he is more likely to be brought to the top again by persons walking or by children playing on the sand than on the clay, hence, chances for hand-and-mouth infection would increase; further, in a sandy soil, the worm would obtain more oxygen than in clay, and air is quite necessary to the development of these worms.

While dealing with the infecting stage, we may mention briefly the methods of infection and of prevention:

Infection.—Infection may undoubtedly take place by swallowing the worm, either in water or in contaminated food, as when a person with dirty hands eats a piece of bread; infection by biting the finger nails or by sucking the fingers, etc., when these are soiled with infested sand also calls for credence. Looss has suggested that infection may take place through the skin, and Bentley suggests that "ground-itch" is a result of cutaneous infection with the larvæ. Looss has now demonstrated the possibility of cutaneous infection, but I would mention the fact that "ground-itch" appears to exist on clay as well as on sandy soil, while uncinariasis is primarily an infection of sand areas; further, anemia can not be said to be a constant symptom after infection with ground-itch. Hence it is possible that our Southern "ground-itch" is only in part identical with the "ground-itch" studied by Bentley.

Prevention.—As for prevention, it is clear that this should consist of two methods in particular: (1) Proper disposal of feces, since infection is here present in its most concentrated form; (2) treatment of all, even light cases of uncinariasis, to decrease the chances of disseminating the infection; and to these two other points may be added, namely (3) drink pure water, and (4) keep hands and nails clean.

Symptoms of uncinariasis.—Turning now to symptoms, it may be stated that there is only one which is absolutely constant, namely, the *presence of hookworms* in the small intestine. If these worms are in the egg-laying stage, as will be found about five to six weeks after infection, *ova will be found in the feces* in proportion to the number of fertilized female parasites present in the small intestine. In light infections, we may have to examine 5 or 10 preparations carefully for half an hour or more, before finding a single

egg; in heavy infections, we may find 20 to 100 eggs in the first slide.

If only two or three parasites are present, the other symptoms will be so light as to escape attention, in fact, it may be stated that the patient is practically well. As the infection increases, however, symptoms become more pronounced, until we reach the extreme stage represented by the so-called "dirt-eater." We have now a train of symptoms more common on a sandy than on a clay soil; more common in rural districts than in cities and towns; more severe among women and children than among men over 26 years old; apparently more severe, or at least more noticeable in blonds than in brunettes; more severe among whites than among negroes; like trichinosis, several cases usually occur in the same family, and, as a rule, also among neighboring families; above the frost-line the symptoms increase from spring to fall, and decrease from fall to spring.

Anemia is one of the most common symptoms, and is usually erroneously attributed to malaria and poor food. Its degree varies, of course, according to the stage and the degree of infection. The *skin* varies from a waxy white to a tallow or a parchment-like yellow to tan. In some cases, the visible *mucous membranes* still retain their reddish tinge, in others they become a marble white. The *cardiac symptoms* are of course prominent, and many of the patients speak of their trouble as "heart disease"; the cervical pulsations, or "neck jerking" in the sand-hill vernacular, may be seen at a distance of 6 to 12 feet; the *pulse* ranges from 80 to 132, without any correspondingly high *temperature*; the latter may be subnormal or normal, although 100 to 102° F. is not rare.

With the anemia we may have an irregularly appearing *edema*, known among the patients as "bloat," "swelling," or "puffiness"; the face and ankles are the parts most frequently affected. The term "bloat" is also applied to the swollen abdomen, which is very common; this is usually referred to as "pot-belly" or "buttermilk belly," and often develops to such an extent that nearly all the men, women, and children of a given neighborhood look as if they were about 6 months' pregnant.

With the anemia, there is usually also a *progressive emaciation*, so that the severest cases appear like living pregnant skeletons. The *muscles* are soft and flabby, and naturally the patients are weak and unable to work. Partially connected with the muscular weakness, I may also mention

the *difficulty in breathing*. One of the most striking symptoms seen in infections of long standing is the *stunted growth*, both physical and mental. A boy or girl of 14 to 18 may appear to be only 10 to 14 years of age, and I have seen men and women 20 to 22 years old who were not better developed than a child of 12. These patients, small in stature, have little or no hair on their body; the penis may be as small as the end joint of the little finger; in a boy of 17, the testicles have not always descended; in a girl of 16 to 22 the breast may be absolutely undeveloped, the vulva not larger than that of a child of 11 or 12, and the patient has perhaps never menstruated or does not menstruate over two or three times a year, then chiefly in the winter months.

I was unable to confirm the view that *sterility* is very common in uncinariasis, but I did find that *miscarriage* was exceedingly common among infected families. Whether these miscarriages were actually due to uncinariasis or to some other cause, must be left an open question. In some cases there was a clear history of venereal disease; in others, it occurred after severe work in the field; in others, the women thought they had malaria and had taken large doses of quinine.

These women age very fast. I have seen a woman of 26, with three children, who looked to be 50 and was totally broken down; and I have seen a woman of 40, with 10 children, who looked to be 70; one woman of about 48, with a history of 18 children and 2 abortions, was a physical wreck.

Parents and teachers complain that the infected children are *backward in their studies*, and the children complain that to study brings on severe *headaches*.

The appetite and bowels are irregular. There may be *diarrhea* or *constipation*. The *appetite* may be light to ravenous, and it very frequently develops in some special *abnormal* direction: one patient will be especially fond of strong coffee, without sugar or milk; another chews coffee most of the time; another eats salt or sucks lemons, or lemons and salt; another is noted for miles around on account of his appetite for pickles; another eats wood; another chews rags; some eat plaster; others eat sand; still others eat clay; and I have found a record of a negro who ate live mice! This abnormal appetite is, I believe, a result of the intestinal irritation and the anemia, and corresponds exactly to what we find in dogs, cattle, sheep, goats, seals, and elephants infested with intestinal worms.

Several recently published articles have referred to peculiar *markings on the tongue* in cases of uncinariasis, and this symptom has been recorded in early writings on dirt eating. It certainly was more or less common in the patients I saw, but in a few cases I suspected that it was possibly due more or less to tobacco or snuff.

One very constant symptom which I found was a peculiar cadaveric or *fish-like stare* to the eye. If a patient is directed to stare intently at the observer, the pupil is seen to be dilated or to dilate and the eye assumes a blank, stupid, cadaveric stare, quite similar to the stare noted in persons in extreme alcoholic intoxication or to the stare of a fish's eye. In only two cases where I noted this symptom, did I fail to find the eggs when the stools were examined; those two cases, 12 and 14 years old, respectively, were sons of a confirmed drunkard, and one of them showed infection with whipworms (*Trichuris trichiura*). This peculiar symptom was not noticed, however, in any of the severe cases of malaria which came under my observation.

Lethality of uncinariasis.—The exact lethality of American uncinariasis must be left undetermined for the present. Severe infections are undoubtedly serious and often fatal, but from the fact that such a large proportion of children are infected in a given locality, and some of these seriously, I obtained the general impression that uncinariasis *per se* is not quite so fatal as one would naturally expect. But let a patient who is seriously infected with this disease contract typhoid, tuberculosis, pneumonia, or severe malaria, and the second illness will be of comparatively short duration. While my observations have not yet extended over a long enough period to speak with certainty upon the subject, I am not disinclined to the belief that we shall eventually all unite in the view that many of the deaths attributed to uncinariasis in man are in reality due to a second disease which the patient was not able to withstand because of the preëxisting hookworm infection. Further, it is evident that with the disappearance of uncinariasis from the sand districts, the proportion of deaths from tuberculosis, typhoid, pneumonia, malaria, childbirth, etc., must necessarily decrease.

Frequency of uncinariasis.—I have already stated that locally infected cases of uncinariasis in cities, towns, and in clay districts, are not frequent. In cities and towns the conditions are unfavorable to the development of local foci of infection, because the streets and walks are paved, yards are sodded, and sewerage is present. As

we approach the outskirts of the city and enter the country, paved streets and walks decrease or disappear; yards are not sodded; and the sewerage systems are supplanted by box privies. Thus, conditions become more favorable for uncinariasis and we find that this increases in sandy regions as we leave the city and in proportion to the attention given to the care of the construction and cleaning of the outhouses. Cases of uncinariasis found in cities and towns have usually come in from the country, hence, when estimating the frequency of this disease we must practically eliminate the city population from the possibility of local infection and recall that an anemia within the city limits, as well as an anemia in rural clay or stone districts, is much more likely to be due to malaria than it is to uncinariasis. By this, I do not, of course, mean to advance the view that malaria is preëminently a disease of cities, but simply to call attention to the fact that cities present conditions which are more favorable to the development of malaria than of uncinariasis.

Holding these facts in mind, I should estimate that in the strictly sand districts, uncinariasis is the most common disease of the white population of the South. In the negro it is less severe, and perhaps less common, than tuberculosis, syphilis, or gonorrhea. Taking the South as a whole, I should say at present that uncinariasis should be placed in the same general category as malaria, tuberculosis, syphilis, and gonorrhea.

Economic importance.—From an economic standpoint, uncinariasis must rival and probably exceed malaria in importance. Its presence prevents the proper education of the children, prevents the proper development of the youth, and decreases the labor-producing power of the adult, hence, of the productiveness of the farm. It increases the number of orphans, and the number of people who must be supported by charity. It increases expenses for drugs and medical attendance.

As illustrations of these points, I have seen families of 12, all of whom were affected with uncinariasis; in one family of 22 members, there had been 11 deaths, including 2 miscarried fetuses; on one farm of 60 hands, 20 were examined and all found infected; the hands of that farm were not producing over 70 to 80 per cent. of normal labor, and in one family I saw on another farm, the labor did not exceed 30 per cent. of normal work. In three orphan asylums, I found about 8 to 15 per cent. of the children infected with uncinariasis.

Uncinariasis in the cotton mills.—I visited three

cotton mills, which I was assured presented average typical conditions for such institutions, and one mill which I was assured was far above the average. Taking the first three as basis for my remarks, it may be said that the amount of anemia and the number of small children among the hands were very striking. Several children were pointed out as the typical "mill children," of whom we have heard so much. It took but a glance to recognize that they presented the type of stunted growth so common in uncinariasis; inquiry developed the fact that they had come from the rural sand districts, and physical examination gave a clear diagnosis of hookworm disease. Visiting a number of mill families in company with the contract physician, it was not difficult to prove that uncinariasis was more or less common, but that with continued residence in the city, the infected cases improved, unless they were too far gone to admit of recovery. The effects of former infection were clearly discernible in two mill men who had been in the city, they claimed, 13 years.

It is not my intention to account for all the anemia and other conditions of the mills by attributing them to uncinariasis, for other factors, such as malaria, the frightful prevalence of tobacco chewing and snuff dipping among even the youngest hands, the constant breathing in of fine particles of cotton, etc., come into consideration, but I would submit that uncinariasis represents a new factor in the subject of the child labor of the cotton mills. While it is not a complete solution of the problems involved, it would be well for us to recall that these children from the sand areas are from one to five years older than they appear; at the mills they are earning more money, have lighter work, are living in more hygienic houses, are in better health and better spirits, have more regular medical attendance and better chances for recovery than these same people had on the sand farms. I do not mean to picture them as giants of strength or their houses as palaces, but to properly judge them we must compare the conditions at the mills with the conditions on the farms, and the mill hands with the farm hands.

General effects on the inhabitants as a class.—We are all familiar with the general characteristics attributed to the poorer white population in certain parts of the South, namely, that class so frequently referred to under the not very rhetorical expression of "the poor white trash." To fully appreciate just what these people are and how they live, we must see them in their homes. Now it has been my experience that these people

present a more typical picture in the sand regions than in clay localities. The poorer whites in the clay regions and in the cities are healthier and more active than those in sand districts. Let a family move from sand to clay, and it improves; let it move from clay to sand and it runs down. This idea that a clay soil is healthier than a sandy soil is common knowledge among many of these people. With the discovery of the prevalence of uncinariasis in the sand localities, we have an explanation of these facts which, though it sounds extreme and sensational, is one which demands serious attention. Personally, after a careful study of eight weeks in the localities in question, and after seeing numerous cases of uncinariasis, I see no possible escape from the conclusion that this disease offers us a pathologic basis for the facts mentioned, and that this is one of the most important, if not the most important, factor in the inferior mental and physical development of these people. Eradicate uncinariasis and these poorer whites will, in one or two generations, be a different people; or let the conditions remain as they are, and any whites who go to the sand farms and live as these people do, will deteriorate to the level of the so-called "dirt eaters" and "poor white trash."

How to change the present conditions.—To alter present conditions, the first thing *not* to do is to try to teach the people to boil their water and keep the hands of their children clean. The proposition of boiling or filtering drinking water is absurd to the average mind of the laboring classes; and the average mother of three to ten children on a "one-horse farm" has something else to do besides washing the hands of her children every time they eat. Any campaign in this matter which we adopt must be practical, not academic. By pursuing an academic course, we shall lose all our influence with the average uneducated man.

The first point is to disseminate widespread among the country physicians an account of the cause, symptoms, cure, and prevention of uncinariasis. This should not be obscured by technical words which not half of the physicians of the world understand.

The next point is to educate the rural population to a more general and a better construction and care of privies, which should be located in such a place that the drinking water can not be infected. This can best be done by the family physician, who has the confidence of the people. Efforts by strangers will meet with suspicion, but the family physician can present to the family

the filth connected with the water contamination and the financial side of the question in the loss of income, expense for drugs, etc. One practical demonstration in a neighborhood will do more than any amount of agitation. Hand in hand with these measures of prevention, one of the medium severe cases in the family should be treated as a practical object lesson. After the recovery of this patient, the family will be only too anxious to follow out directions, and with an improvement in the general condition of the family, the cleanliness will more or less take care of itself, especially if the children go to school. I doubt, however, whether the average farm hand will ever come to the point of boiling or filtering the drinking water.

Treatment.—The method of treatment is very simple, but contains one prominent pitfall, namely, the impression that a single dose of medicine can be administered and the patient discharged as cured. As a rule, large doses of thymol or large doses of male fern are given. If the former, the physician should absolutely prohibit the use of alcohol during the day of treatment. One method is as follows:

8 A. M. 2 grams (31 grains) powdered thymol in capsules.

10 A. M. Repeat.

12 Noon. Dose of salts or of castor oil.

Repeat treatment once a week until stools show no evidence of eggs.

If male fern is used, comparatively high (and sometimes fatal) doses are usually given, namely, from 10.0 (2½ fluidrams) to 20.0 (5 fluidrams).

Uncinariasis in Northern Practice.—With the possible exceptions of mining districts, probably most of the cases of hookworm disease observed by Northern practitioners will be imported from Europe, the Philippines, the Southern States, Cuba, Porto Rico, Central and South America. If from Europe, Asia, Africa, or the Philippines, *Agchylostoma duodenale* will be usually found. If from the American continent, *Uncinaria americana* is more likely to be found. To the Northern physician, who has the patient isolated from the source of infection, it is, of course, of importance to determine how long the parasites will persist in the intestine. Bearing upon this point I can say that I have one case, which is free from criticism, where *Uncinaria americana* has lived 6 years and 7 months; two cases, likewise free from criticism, where the infection has persisted 6 years; finally, one case, not free from criticism, where the infection *may have* existed 10 years.

It is needless for me to insist upon the practi-

cal application of this point. Here in Brooklyn you may have a case of obscure anemia; in such a case it is necessary to go back for 10 years in the history to see whether the patient has during that time visited any sand areas in the Southern States or elsewhere in warmer climates.

INFANT DIARRHEAL MORTALITY IN BROOKLYN. ITS CAUSE AND PREVENTABILITY.

BY LOUIS C. AGER, M.D.

Read at the Meeting of the Kings County Medical Association,
December 6, 1902.

The title of this paper properly embraces two questions:

I. The cause and preventability of the high summer infant mortality in all large cities.

II. The cause and preventability of the excess of Brooklyn's summer infant mortality over that of Manhattan.

The paper will be mainly devoted to the second question, but most of the deduction and suggestions will apply equally to other large cities.

The statistics are derived from three sources:

I. The U. S. Census of 1900.

II. Various reports of the New York and Brooklyn Health Departments.

III. Personal investigation of 250 fatal cases of diarrheal disease in Brooklyn and 519 cases in Manhattan.

The "exciting cause" of this paper may be concisely shown in Tables I. and II. Table II. particularly shows the marked difference in the diarrheal mortality in Brooklyn and Manhattan,—a difference of from 30 to 40 per 100,000 of population on the wrong side of the sheet for the credit of Brooklyn. The figures in Table II. are estimated on the new classification of causes of deaths and cannot be compared with the figures in Table I. Under the old classification, "Diarrheal Diseases" included diarrhea, dysentery, cholera morbus and entero-colitis, while enteritis and gastro-enteritis were classed under "Digestive Diseases." Now the two latter have been added to the diarrheal class. Table I. has been prepared to show how long the rate has been higher in Brooklyn than in Manhattan. From 1881 to 1891 inclusive Manhattan had a higher rate than Brooklyn, with the exception of two years. Since 1891, with the exception of two years, Brooklyn has had the higher rate.

The first fact that attracts attention in Table I. is that in twenty years the diarrheal death rate has been more than cut in half. But the next

thought is that during the second decade New York has far outstripped Brooklyn in improvement. Two possibilities suggest themselves to invalidate these comparisons. The first, a possible difference in methods of classification, might have had some weight ten years ago, but since consolidation the systems have been identical. The second possibility was that there might be a difference in child population. Unfortunately the United States Census for 1900, Table III., shows that the difference is in favor of Manhattan. This fact is, I believe, contrary to the general belief in the matter.

This leaves unexplained the fact that Brooklyn, with its long standing reputation for excellent sanitation and low death rate, has a higher infant mortality than Manhattan, which contains some of the most densely populated areas in the world.

Tables IV. and V. show that not only Brooklyn makes a poor showing, but that the other boroughs are even more in need of investigation. In fact it seems to be the rule in Greater New York that the diarrheal mortality is inversely as the density of population. Differentiating still further, Table VI. shows that the three suburban wards of the Borough of Brooklyn with no tenement population and with a different water supply, had during July, 1902, almost the same infant death rate as the rest of the borough.

It is the fashion at present to look upon "poor milk" as the root of all diarrheal evils, but improper diet is a better statement of the case. All who have spent their summers in country districts are aware that it is easier to get clean, rich, sweet-flavored milk here in Brooklyn than on a farm. Moreover, there is practically no difference between the milk in Brooklyn and that in Manhattan.

The Brooklyn water supply also comes in for a share of the blame, but two facts weaken this argument. First, the high death rate prevails in the wards not supplied with Ridgewood water. Second, the rate is even higher in the other boroughs.

Several facts from widely different sources are very suggestive when brought together in this connection. First, certain English observers have shown that when subsoil temperature reaches about 56° F. there is a rapid increase in diarrheal diseases. They therefore suggest that the specific organisms are found in the soil and that they develop rapidly with a favorable temperature. Second, the claim of Duval and Bassett, in Baltimore, to have demonstrated that the *Bacillus Dysenteriae* of Shiga is the specific organism in diar-

rheal diseases. This organism apparently belongs to the colon group and might multiply in the soil under favorable conditions. Third, the fact that Brooklyn and the suburban boroughs have, in comparison with Manhattan, an exceedingly large area of filth-soaked soil in vacant lots and dirty cobble-paved streets. These lots and streets are the play-grounds and breathing spots for the tenement-house children and babies. Investigations in Manhattan during the past year have shown that the number of bacteria in the air of streets depended upon two facts: first, the cleanliness of the streets, which in turn depends upon the nature of the pavement; second, the height above the ground at which the experiments were made. Plates exposed on the curb developed several times as many organisms as those exposed at a height of six feet. Children on the street and in baby carriages are therefore much more likely to inhale dust-borne organisms, and their methods of play bring the organism in the soil in direct contact with their hands, faces and mouths. The sooner the public realizes that smooth pavements are an actual economy in human lives, the sooner will the infant mortality decrease.

There has been going on in Manhattan for the past ten years an agitation for tenement house reform that shows its practical results in the creation of Mulberry Bend Park, the destruction of many rear tenements and finally in the present tenement house laws. Previous to this year Brooklyn has reaped little or no benefit from this work. As a consequence, conditions in Manhattan have greatly improved while conditions in Brooklyn—leaving some model tenements out of consideration—have been at a standstill, or have even retrograded. From impressions received fifteen years ago, during daily work among the tenements, the writer feels convinced of two things: First, that the number of old and dirty private dwellings converted into tenements of the poorest class is many times what it used to be; second, that the sanitary conditions in these old buildings are much worse than they were. Further, the sanitary lawlessness that exists among the foreign population in certain sections where the infant mortality is highest, passes the bounds of anything seen in the writer's experience in Manhattan. If time permitted, this sanitary lawlessness might be traced to the recent rapid changes in the nature of Brooklyn's population. Many of us have in the past taken a certain pride in Brooklyn's reputation as a village community of peaceful, law-abiding citizens. Our police force has

never been called upon to deal with a foreign population such as Manhattan has had for many years, derived from the most ignorant of the European races. The detection and prevention of deliberate crimes have probably been carried out as well in Brooklyn as in Manhattan, but the respectable citizens of this borough are not yet ready to admit the necessity for the apparent hard-heartedness and cruelty that are employed across the river in dealing with the sins of ignorance, of the foreign population. Students of the "Eastern Question" see Russia slowly but surely gaining ground against England by a policy of ruthless compulsion in dealing with a lawless people. As a matter of self-preservation, we must see that our sanitary laws are obeyed even if they are carried out with a machine-like disregard for accidental circumstance.

For the purpose of determining if possible the causes producing Brooklyn's high summer infant mortality, the writer of this paper undertook during July and August of this year a systematic investigation of the deaths from diarrheal diseases in children under two years of age. A card catalogue form was printed with blanks for the name, address, age, nationality, sex, class of dwelling, use of water, milk source, food, specific cause of death, attending physician. The facts given on the death certificates were copied at the Health Department from day to day. The other facts were obtained from members of the family or from the physician. Statements obtained from the latter source were very unsatisfactory. In some cases the physician, after attending a baby for a week, was unable to state what food or milk had been used. Some seemed to think that "bottle-fed" was all the information necessary.

In this way statistics were obtained from the investigation of 250 cases in Brooklyn. A similar investigation was carried on by the Health Department in Manhattan, and statistics from 514 cases in that borough are also given. Unfortunately the Manhattan statistics are somewhat vitiated by the fact that they were collected by about twenty different individuals with as many different points of view. Statistics were also obtained in regard to the feeding of sick and healthy children in both boroughs. Although the figures dealt with are not large enough to be conclusive, they are certainly suggestive, and the deductions drawn are in accord with those of other observers.

Table VII. is of casual interest as illustrating the general rule that the infant death rate is high-

er among males than among females. Table IX. shows that three-fourths of the deaths from diarrheal diseases in children under two years of age occur between the ages of three months and one year, and over two-fifths occur between four months and nine months. Four-fifths of the deaths occurred in tenements and two-fifths in tenements of the poorer class.

The most important statistics, however, are those that relate to feeding. Artificial feeding is universally recognized as the great cause of high infant mortality. Table XII. shows that 93 per cent. of the healthy children and 8 per cent. of the dead children were nursed. To what extent these conditions are preventable is a matter of dispute even among physicians. Theoretically we ought to be able to prepare a food that could be digested and assimilated by any normal infant. Among people with the means and intelligence to carry out instructions, we find this to be true. If, therefore, it can be shown that the conditions necessary to artificial feeding are better carried out in Manhattan than in Brooklyn, the difference in death rate will be largely explained. The facts presented show, as far as is safe to draw conclusions from so small an aggregate of figures, that there is a remarkable difference in the methods of artificial feeding employed in the two boroughs. According to Table II., 60 per cent. of the children dying in Brooklyn under the conditions given are fed on condensed milk, as compared with 27 per cent. in Manhattan. And further, Table XIII. indicates that twelve times as many apparently healthy bottle-fed babies are given condensed milk in Brooklyn as in Manhattan. The conclusions drawn are strengthened by conversation with tenement house women in the two boroughs. The mothers in Brooklyn speak of condensed milk as if it were the universal substitute for mother's milk. In Manhattan the women speak of "Straus's milk" or "cow's milk" in the same way.

Condensed milk as a baby food is so universally condemned by those who have studied the subject that it seems superfluous to enter into a discussion of its value here. Yet there are many physicians who habitually recommend it to their patients on the ground that it is cheap and easily prepared and that children fed on it gain in weight rapidly. If any intelligent person will compare the proportions of proteids, fat and sugar in human milk with those in the average condensed milk mixture, he will at least admit a striking difference.

On the best brands of condensed milk, the di-

rections for infant feeding are to dilute with from ten to sixteen parts of water, according to the age of the child. An analysis of condensed milk is given in Table XIV. Table XV. compares normal human milk with the mixture resulting from a dilution of condensed milk with thirteen parts of water.

The advocates of condensed milk will at once ask, why do babies thrive on it? They do not. They appear to, because the large amount of water and sugar they consume is converted into a low grade of fatty tissue, and the babies gain in weight rapidly. But there is no corresponding development of bone and muscle. One pediatricist declared recently that he had never seen a condensed milk fed baby that did not show signs of rachitis. It seems strange, under the circumstances, that condensed milk is so generally used as a baby food. Probably custom has a good deal to do with it. Twenty-five years ago the pioneer pediatricists, Jacobi, Meggs, and Pepper thought that condensed milk might make a good substitute for mother's milk, and the ease of its preparation has kept it in use ever since. It is far easier for the busy general practitioner to say, "Give the baby condensed milk," than to explain the preparation of a fresh milk mixture.

The statement is often made, as an excuse, that the tenement mothers are not intelligent enough to follow directions. That this claim is groundless is the belief of the present writer. It is further refuted by Kerley and Hughes in the *N. Y. Medical Journal* for Nov. 22d, of this year. Their statement is as follows:

".....Our experience with thousands of tenement mothers justifies us in reaffirming that the fault and absence of good results rest more with the doctor than with the tenement mother. When printed and written directions are used and a pamphlet of instructions given to each mother (as has been done for several years at the Babies' Hospital), when she learns, as she will at the first visit, that the physician is personally interested in the welfare of her baby, she will with very few exceptions do her best, which is usually not bad."

Their whole article is a valuable, practical addition to the literature of this subject.

It is true that many physicians have had discouraging experiences with fresh milk. They have found that babies were fretful and did not thrive on it and that they became fat and contented when put on a condensed milk mixture. There is a very simple explanation and remedy for this fact. If the fresh milk mixture is diluted to nearly the proportion of the condensed milk

mixture and enough milk sugar added to take the place of the cane sugar, the infant will do very well. In a few days the percentages may be increased slowly until a normal mixture is reached. Almost invariably it will be found that the textbook percentages for fresh milk mixtures are too strong for immediate use.

All this presupposes a good quality of milk. That with proper care good milk can be obtained in Brooklyn at eight cents a quart, seems to be the case. That a large amount of stale milk is distributed throughout the city at a less price is also the case. One of the first steps when a baby is to be fed is to insist that the milk is from a known reliable dealer. The larger dealers are the most reliable because they have put milk production and distribution on a scientific basis. If the company knows that a physician is taking a personal interest in the quality of the milk, the dealer or driver will be more careful than otherwise. The methods of preparing fresh milk mixtures are so generally known that it would be a waste of time to enter into details here. Only one suggestion will be made,—namely, to bear well in mind the fact that the ideal mixture is made from raw milk and that whenever the bacterial flora is known to be at a minimum, the various methods of sterilization should be omitted. This fact is particularly emphasized by the Pediatric Society's statistics in regard to infantile scurvy.

The Milk Commission, with its "certified milk," is performing a very useful work in showing what can be done to get fresh, uncontaminated milk into the hands of the city consumer. But this can have no bearing except as an example on the tenement house mortality, on account of the cost. In fact, the method of procuring certified milk is likely to have a very deleterious effect on the ordinary milk from the same dairy. In order to get milk as free from bacteria as possible, the "fore milk"—that is the first part of the milking—is discarded. This "fore milk" contains most of the bacteria, later milk being sometimes entirely sterile. No dairyman is likely to throw away this discarded milk, and as a result, it will be sold in the ordinary way, enormously increasing the bacterial count of the ordinary milk with which it is mixed. The bacteria found in the "fore milk" are supposed to be due to the rapid multiplication in a favorable soil of the bacteria entering the teat between milkings. Possibly this might be avoided by sealing each teat with flexible collodion immediately after each milking.

The attention of the Milk Commission is also

called to an article by Harrison and Cumming, in the November *Journal of Applied Microscopy*, in which it is stated that as many as 57,000 bacteria per c.c. were found in the after milk of some cows. As the Commission sets 30,000 as the limit of safety at the time of delivery, it would be well to test the after milk from individual cows in dairies where the bacterial count is suspiciously high.

It is frequently asserted that the distribution of Pasteurized milk by the Health Department or by charitable organizations can have no practical effect on the tenement mortality, for the reason that the amount of milk distributed is a mere drop in the bucket. This conclusion is drawn from a hasty and superficial view of the question. It must be remembered that the effect of having one sick baby recover and grow strong on proper food is of immense educational value. During the past summer the Children's Aid Society distributed about 2,600 bottles of milk a day. This meant that about 500 sick babies a day were being properly fed. Among the 250 fatal cases investigated, not more than ten were found in which the Pasteurized milk had had been used, and then, as a rule, its use was begun but a few days before death. The logical inference is that even with the small amount of money spent, the death rate was appreciably reduced. For the coming year plans are already on foot for raising a much larger sum of money and for an earlier and more systematic organization for summer corps work. With the active coöperation of the medical profession throughout the city it is confidently expected that Brooklyn will have a record to be proud of in 1903.

Conclusions.—To review briefly what this paper has tried to show, there seem to be three chief causes for Brooklyn's infant mortality. The first, unsanitary tenements,—is being remedied to a considerable extent under the operation of the new tenement house law. The second,—unsanitary streets and lots,—is worthy of considerable attention. More paving and repaving is going on in this borough than ever before, except during the period when Mr. Alfred T. White was Commissioner of Public Works. Unfortunately under the present system the streets that are in the most urgent need of repaving, from a sanitary point of view, are least likely to be called to the attention of the Highway Commissioner. The owners of cheap tenements are not by any means begging for paving assessments. To remedy this state of affairs, some committee or organization ought to draw up a list of badly paved tenement

streets and coöperate with the Commissioner of Health in having the conditions improved.

The Health Department has already given some attention to the sanitary condition of vacant lots, but a radical change should be instituted in regard to fencing. The custom of concealing filthy spaces behind high board fences for the sake of appearance is on a par with the oriental use of perfume to cover foul odors. Vacant lots should have no fences or, at most, those built of rails or pickets. Furthermore, some city official should have the practical power to compel owners to keep their property clean or to clean it at the owner's expense. If the imagination were allowed free play at this point, we might picture some philanthropic movement to interest the children of the city in the beautifying of vacant lots, by the use of seeds and shrubs supplied free. A certain woman in Manhattan has already proved, by practical effort, that the tenement children can be successfully interested in such work. The idea is, however, somewhat without the scope of this paper.

Finally, how can the present customs of infant feeding be changed? This must be accomplished by a campaign of education, and the education must begin with some members of the medical profession. A prominent Manhattan physician stated recently that Brooklyn was so medieval that sanitary education seemed impossible. This is surely a prejudiced and pessimistic view; nevertheless, the physicians in Manhattan who are satisfied with telling their patients to give the baby condensed milk are in a very small minority. Furthermore, the physician in Manhattan who did make such a statement would run considerable risk of criticism from the patient and the neighbors. Tenement mothers across the river have quite generally become convinced that "Straus' milk" is *the* food for the baby. This has come about through education—education in various ways. The newspapers in Manhattan during the past few years have given considerable space to the question of milk distribution, and it is probable that even the occasional adverse criticism has served as advertising for that philanthropic work. The actual number of babies fed from the free milk depots is insignificant, but each sick baby cured and each puny baby made strong by the fresh milk is a practical object lesson to the mothers of a dozen more. The mother who has seen one child improve on a certain food will be ambitious to learn to prepare that food for the next baby before it gets sick. Such an influence goes out in ever-widening circles and cases might

be cited of babies in Brooklyn fed on modified milk because cousins in Manhattan had thriven on it. One case in the eastern part of the city comes to mind where a mother took the advice of relatives in Manhattan and declined to carry out the physician's orders to give the baby condensed milk.

These investigations indicate that for the present at least the campaign against "stale milk" and "grocery store milk" will not have a marked effect on the diarrheal mortality, for the reason that so few bottle babies are fed on fresh milk of any kind. If "grocery store milk" is as bad as some physicians claim, some modification of the milk license regulations might be contrived to prevent the handling of milk by so many small dealers. By specifying some thoroughly sanitary and rather expensive method of caring for the milk, the small careless dealers could be induced to give up the sale.

For the present, let us make a concerted effort toward the education of the mothers on the proper feeding and dressing of infants and toward the cleansing of our streets and vacant lots, in order that our city of Brooklyn may live up to its former reputation for the most healthy of America's larger cities.

TABLE I.

NUMBER OF DEATHS FROM DIARRHEAL DISEASES IN CHILDREN UNDER 5 YEARS OF AGE PER 100,000 OF TOTAL POPULATION.

Year.	Brooklyn.	Manhattan.
1881.....	257	297
1882.....	264	271
1883.....	214	219
1884.....	234	232
1885.....	232	205
1886.....	163	208
1887.....	180	219
1888.....	190	200
1889.....	148	200
1890.....	163	185
1891.....	179	189
1892.....	177	173
1893.....	168	164
1894.....	151	149
1895.....	159	151
1896.....	132	133
1897.....	114	118
1898.....	131	121

TABLE II.—New Classification.

1898.....	224	191
1899.....	180	142
1900.....	196	160
1901.....	194	161

TABLE III.

	Brooklyn.	Manhattan.
Population, 1902	1,166,582	1,850,093
Population under 5 years.....	28,961	46,796
Percentage under 5 years.....	2.48	2.53

TABLE IV.

PERCENTAGE OF TOTAL POPULATION DYING UNDER TWO YEARS OF AGE FROM DIARRHEAL DISEASES. Summer 1901.

Manhattan	106 per cent.
Brooklyn	133 per cent.
Queens	135 per cent.
Richmond	190 per cent.

TABLE V.

DEATH RATE PER 100,000 OF POPULATION. DIARRHEAL DISEASES ALL AGES, 1900.

New York County	170
Kings County	209
Queens County	216
Richmond County	228

TABLE VI.

INFANT DIARRHEAL MORTALITY, JULY, 1902. Manhattan. Brooklyn. Sub. Wards.

Number of deaths under two years of age	660	571	21
Percentage of total population	.00348	.00457	.00441
Decrease from July, 1901	30	131	

TABLE VII.

Male	128
Female	122

TABLE VIII. PREVIOUS HEALTH.

Good	146
Poor	104

TABLE IX.

AGES.

Under 1 month	10
1 to 2 months	15
2 to 4 months	31
4 to 6 months	61
6 to 9 months	52
9 to 12 months	42
12 to 15 months	15
15 to 18 months	13
18 to 24 months	11

TABLE X.

DWELLINGS.

Tenements—Poor, 97; Fair, 58; Good, 45	200
Private houses	36
Institutions	14

TABLE XI.

FEEDING PERCENTAGES.

	Manhattan.	Brooklyn.
Nursed	19	28
General diet	3	16
Condensed milk	27	60
Prepared foods	8	51
Fresh milk	42	10
Goat's milk	—	.8

TABLE XII.

COMPARISON OF PERCENTAGES.

	Well.	Sick.	Dead.
Nursed	93	6	8
Condensed milk	4	20	60
Fresh milk	1	4	10
Prepared foods	1	1	5

TABLE XIII.

RATIO OF USE OF CONDENSED MILK AND FRESH MILK.

Manhattan	1:4
Brooklyn	3:1

TABLE XIV.

ANALYSIS OF CONDENSED MILK. PERCENTAGES BY WEIGHT.

Fat	9.6
Caseine	8.5
Milk sugar	11.5
Cane sugar	44
Specific gravity	1.28

TABLE XV.

PERCENTAGES—CONDENSED MILK MIXTURE.

Fat	.85
Caseine	.75
Milk sugar	1.02
Cane sugar	3.87

NOTE OF A CASE OF GUNSHOT WOUND OF THE NECK. SECONDARY HEMORRHAGE ON THE SIXTH DAY. PROVISIONAL CONSTRICTION OF THE COMMON CAROTID ARTERY WHILST LOCATING THE SOURCE OF THE HEMORRHAGE. FURTHER HEMORRHAGE ON THE TWELFTH DAY. LIGATION OF THE COMMON CAROTID, AND OF THE EXTERNAL CAROTID OF THE OPPOSITE SIDE.

By G. R. FOWLER, M.D.,
Brooklyn-New York.

Read before the Brooklyn Surgical Society, January, 3 1903.

J. O., Italian, barber, 22 years of age, was admitted to the German Hospital on Nov. 9, 1902, suffering from a self-inflicted revolver wound of the buccal cavity and neck. The bullet had torn away a portion of the left side of the tongue, thence being deflected downward and backward by the inferior maxilla, and was felt beneath the skin at the posterior border of the sternomastoid on a level with the thyroid cartilage.

The hemorrhage, slight at first, was easily arrested by simply tamponing the wound track from the cavity of the mouth with sterile gauze. The ragged edges of the wound of the tongue were drawn together by sutures, and frequent spraying of the cavity of the mouth by hydrogen dioxide followed by irrigation with warm boric solution, ordered.

Owing to the uncertainty as to which, if any, of the large vessels of the neck had been injured, the patient was ordered to remain perfectly quiet in bed and to be carefully watched for secondary

hemorrhage. At noon on the 6th day, a sudden gush of blood took place with sufficient force to drive the tampon of gauze from the wound track and into the cavity of the mouth. The house surgeon, Dr. Fulda, with commendable coolness and celerity succeeded in getting the bleeding under control by a vigorous re-tamponing of the wound track.

I reached the hospital in less than an hour following the occurrence of the hemorrhage. The patient was suffering markedly from loss of blood. He was taken to the operating room and anesthetized with chloroform. An incision was made along the anterior border of the sternomastoid at its lower portion and the common carotid sheath exposed below the omo-hyoid. The sheath was opened, the artery isolated and an aneurism needle armed with two catgut ligatures passed. The internal jugular vein was treated in the same manner.

Of the two ligatures passed around the common carotid, one was grasped at the ends with a pair of clamp forceps and twisted until the portion which encircled the artery constricted the latter only just sufficiently to shut off the blood current, and no more. The weight of the clamp attached to the ligature was sufficient to prevent it from untwisting. Care was taken to avoid even the slightest injury to the coats of the vessel. The second ligature was simply grasped with a forceps and placed to one side ready for use as a permanent ligature should the exigencies of the case demand its employment. The incision was then extended so as to include and cross the track of the missile, and thus permit of direct examination of the site of the hemorrhage. As the parts were laid bare it was found that the bullet had partially severed the sterno-mastoid, at a point opposite to the angle of the jaw about one-third of the inner or anterior margin of the muscle being divided. The retraction of the ends left a space about double the size of an English walnut, which was filled with blood clot. Slight bleeding was encountered as the clots were cleared out. As the blood current was turned on, however, by slightly untwisting the ligature about the common carotid artery, a per saltum stream was seen to issue from the wall of the cavity in the direction of the angle of the jaw. The bleeding vessel was identified as the facial artery, and was easily secured and tied. The full stream through the carotid was now turned on, but no further bleeding took place.

The wound leading to the cavity of the mouth was thoroughly cleansed, as well as that beneath

the angle of the jaw, and a small auxiliary cavity from which the bullet was removed. These were then packed with zinc oxide gauze wrung out of hydrogen dioxide. The temporary constriction of the artery and vein, as well as the emergency loose ligatures of both these vessels were now discarded, and the wound of incision made for the purpose of laying bare the latter, closed.

On the 6th day thereafter, and the 12th following the receipt of the injury, another hemorrhage took place. The saturated dressings were removed, the wound track tightly packed, and a firm bandage applied. This arrested the bleeding for the time being. The next morning I reopened the wound over the common carotid and exposed the vessel. The latter was again constricted, after which the tampon was removed and the blood stream turned on. The bleeding was found to come from the direction of the inward distribution of the ascending pharyngeal branch of the external carotid.

The matted condition of the tissues due to the inflammatory reaction in the neighborhood of the bullet track, and the inaccessibility of the place of injury to the vessel made it impossible to seize the bleeding point and ligate it, and the septic conditions overlying and surrounding the bifurcation of the common carotid rendered the application of a ligature to the external carotid at its origin with any degree of safety, out of the question. It was therefore decided to ligate the common carotid above the omo-hyoid, where the ligature had been already applied for the purpose of temporarily constricting the vessel.

The bleeding ceased at once, but, owing to the freedom of anastomosis between the external carotids of either side, the opposite external carotid was likewise exposed and ligated. The after history of the patient was that of slow but uninterrupted convalescence.

Remarks. In addition to calling renewed attention to the necessity for a watchful care over cases of gunshot wounds of the neck, lest the occurrence of secondary hemorrhage catch the surgeon off his guard, this case is reported for the purpose of demonstrating (1) the application of the method of turning off and on the blood stream to a class of cases in which it is desirable to avoid permanent ligation of the common carotid, the preferable operation in cases of hemorrhage being the application of a ligature *in loco*, whenever possible; and (2) the simplicity of the technic and its applicability to cases of extensive operations about the head and neck, both for the sake of preventing loss of blood as well as for

the purpose of keeping the field of operation clear.

In cases of gunshot wounds of the neck, particularly in those cases in which the missile encroaches upon the area of the large vessels from the direction of the mouth, secondary hemorrhage is particularly to be feared. The liability to this accident is due, first, to injury to the vessel walls, such as a contusion, in which the coats of the artery, especially, undergo a sloughing process, which, at periods of time varying from 6 to 12 days, leads to rupture of the vessel. The second important factor in the causation of secondary hemorrhage is the presence of septic conditions. In fact, it may be stated that without sepsis the wound track of the bullet is usually sufficiently closed by the average time in which the coats of the vessel give way, and hence, while other important sequences, such as diffused traumatic aneurism, sacculated aneurism, etc., may follow in the wake of the injury, the dangers of secondary hemorrhage are comparatively small. Unfortunately, however, the low muzzle velocity weapons with which these wounds are usually inflicted in civil life, lead to suppuration along the bullet track in the majority of instances, even when the entrance to the deeper tissues is effected from the skin surface. In the cases in which the bullet enters by way of the mouth, which not uncommonly occurs in suicidal attempts, nothing short of the most pronounced septic conditions is to be expected. Hence, in this latter class of cases, at least the most favorable conditions, namely, an injury to the vessel with germ infection to assist in the rapid disintegration of its coats, on the one hand, and septic conditions of the surrounding structures to delay healing of the wound track on the other, are present, for the occurrence of secondary hemorrhage.

Temporary constriction of the carotids preliminary to operations upon the head and neck as a substitute for preliminary permanent ligation (Pirogoff, 1840; Madelung, 1874), was introduced by Senger, of Krefeld.* Schönborn exhibited an instrument for the purpose at the International Medical Congress in Rome. Riese† reported two cases of resection of the upper jaw with temporary preoperative ligation of the carotid. Experimental researches upon the histological changes which occur in blood vessels that have been subjected to compression and ligation were published by Eberth and Schimmelbusch‡.

More recently Dr. George W. Crile,* of Cleveland, called renewed attention to the subject by a series of carefully planned and conducted experiments, and the report of 11 cases in which the method was successfully employed. He showed that even after 24 hours of complete closure the macroscopic evidences of injury to the vessel wall were not marked. The effects upon the circulation, even when both vessels were temporarily closed, were simply those of increased blood pressure, which soon became adjusted to the normal through physiologic compensation. Respiration was not interfered with to a marked extent. The after effects were practically nil, as shown by post mortem examinations made of the cranial contents of the animals experimented upon.

The simplicity of the technic herewith presented is a point in its favor. The artery compressor of Schönborn, as well as the screw clamp of Crile are special devices not always at hand in an emergency, and any simple and readily available means whereby the end may be attained with certainty and celerity must prove a welcome addition to the surgeon's resources. In the method herewith advanced the technic is as simple and expeditious as it is trustworthy. The aneurism needle is threaded with two ligatures which are passed about the vessel. One of these may be braided silk and the other catgut, or both may be catgut.

If braided silk is used this is to be employed as the provisional or temporary ligature. Its ends are seized with a pair of artery forceps and the two legs of the ligature twisted together, just as wire is twisted in wiring fractures. If the provisional arrest of the blood stream is to continue for a long operation the braided silk used should be coarse enough to obtain a ribbon-like effect as it flattens itself upon the vessel, or several strands of silk or catgut may be employed. Under the same circumstances* (prolonged "turning off" of the blood stream) the temporary ligature may be passed twice around the vessel, after which it is drawn only sufficiently taut to insure obliteration of the lumen, and prevented from slipping by twisting the ends of the ligature until the termination of the twist lies upon the vessel. In cases in which I have used the method in operations about the head and neck I have disregarded all these considerations and simply passed a double thread of catgut, utilized one for the temporary ligature and held the other in reserve for use as a permanent liga-

* Deutsch med. Wochenschrift, 1895, No. 22, p. 160.

† Deutsch med. Wochenschrift, 1896, p. 67.

‡ Die Thrombose nach Versuchen und Leichenbefunden, Stuttgart, 1888.

* Problems Relating to Surgical Operations, George W. Crile 1901, p. 185 et seq.

ture should the exigencies of the case demand its employment.

Having obliterated the lumen by twisting the ligature, measures are to be taken to prevent the latter from prematurely untwisting and thus releasing the blood stream. This is accomplished by utilizing the weight of the forceps themselves. The latter are simply allowed to rest flatwise, the ends of the ligature being left sufficiently long to enable this to be done without their being in the way during the subsequent steps of the operation. If the operative procedure is sufficiently far removed from the incision for exposing the common carotid the latter should have a dressing applied, the forceps holding the twisted ligature, as well as that which secures the loose emergency ligature, being included in the bandage.

But very little need be said regarding the advantages arising from preliminary provisional, or temporary arrest of the blood stream through the common carotids during operations upon the head and neck. The innocuousness of the procedure, as shown by Crile, and the removal of an enormous handicap both to the patient and to the operator, bid fair to bring the method into favor with practical surgeons. Not only is the patient saved a large loss of blood, which is the most important of all considerations in connection with operative work in this neighborhood, but the surgeon is enabled to do his work with greater thoroughness, since more definite dissection and delimitation of diseased areas are possible with the operating field clear of blood. This phase of the subject appeals with especial emphasis to the surgeon when operating for malignant disease.

Temporary constriction to the internal jugular vein, as applied in the case herewith reported, while serving to a certain extent in arresting the reflux hemorrhage occurring in connection with gunshot wounds of the neck, as well as in preventing the passage of air into the vein, is omitted in cases of preoperative temporary constriction of the common carotids.

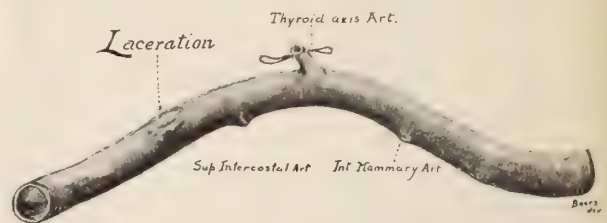
Medical Society of the State of New York.—Members of County Medical Societies and the profession of the State generally are invited to attend the Annual Meeting of this Society, which is to be held in Albany, January 27 to 29, 1903. Reduction in railroad fare can be secured by obtaining at the station, on starting, a certificate which, when endorsed at the meeting by the secretary and the Special Agent of the Trunk Line Association (who will be present the first two days), will entitle to return at one-third fare.

REPORT OF CASE OF LACERATION OF THE SUB-CLAVIAN ARTERY FROM A FRACTURED CLAVICLE.

BY WM. E. BUTLER, M.D.

This case is reported because of its rarity, there being only one other mentioned in literature and that one in 1820.

The patient, a man of thirty-four, while supervising the loading of cotton on board a steamship, was struck by a five-hundred pound bale on the right shoulder, the blow being sufficient to almost pin him down. He was taken to his home, a distance of three or four miles, in an ambulance. I was asked to see him November 29th, sixteen days after the injury, and was told that he had a fracture of the clavicle at the juncture of the middle and sternal portions. The examination showed that the bone was fractured at the point indicated; that in the axilla was an enormous swelling holding the arm upward, outward, and backward, tending to keep the fractured bone in



its proper position, the ecchymosis extended down the side and over the back, the scapula being separated from the ribs. The scapula was fractured at its lower third and the skin was broken and ulcerated over an area of three inches with the skin somewhat inflamed over the entire back. The arm was swollen and without sensation, the radial pulse was small but perceptible.

The diagnosis of injury to one of the larger branches of one of the axillary vessels was made in addition to the above findings. The pain had been intense since the injury and was only relieved by large doses of morphia.

Considering that the hematoma was due to injury to one of the branches of the larger vessels and not to the injury of the main trunks, I advised waiting, to allow the so-called protecting wall to form and thus prevent much absorption when the tumor was opened and the old blood evacuated. He was seen eight days later and as he had not gained in strength and considering that it would not be advisable to evacuate it anywhere but in a hospital, I had him removed to the

Williamsburgh Hospital the same evening. The trip to the hospital gave him a great deal of pain.

He was taken to the operating room December 11th, just four weeks after the injury. Chloroform was given at the start and then followed by ether.

An incision was made in the axilla over the prominent part of the hematoma, an inch and one-half in length. Two or three clots were evacuated when there was a sudden gush of blood as from a hydrant; as it was arterial blood we knew it was from one of the large arteries which must still be pervious. The subclavian was immediately compressed against the first rib and the enormous flow of blood was stopped. The incision was enlarged and more clots evacuated and the cavity packed with gauze and an assistant pushed his whole hand in against the artery up into the axilla. As the first gush had almost exsanguinated the patient he was given an intravenous infusion, which rallied him considerably. An incision was then made under the clavicle in order to expose the axillary and last division of the subclavian and ligate above the wounded point. Some bleeding occurred at this time owing to a slight letting up of the pressure on the subclavian, so another infusion was given and the extremities tied and bandaged; the patient was all this time in the Trendelenburgh position.

There was considerable difficulty in clamping the vessel owing to the distorted position of everything in the axilla.

Notwithstanding all our efforts the patient died on the table.

Postmortem examination of the parts showed a fracture of the clavicle at the junction of the middle and sternal thirds, also of the first rib; a splinter of the clavicle was detached at the point of fracture and penetrated the third division of the subclavian passing directly through from one side to the other, leaving only a small bridge of artery between the two punctures. There could therefore have been no closure of the artery and every time the clot was slightly absorbed, bleeding would start afresh. The amount of blood that had dissected down under the skin was about two quarts.

Lectures on the Neuroses and Psychoses of Spirits and Drug Addictions.—Dr. T. D. Crothers, of Hartford, Conn., will deliver a course of lectures on Alcoholism, Morphinism and other Drug manias, in the hall of the New York School of Clinical Medicine, 328 West Forty-second street, between Eighth and Ninth avenues.

MEMORIAL ADDRESS.

BY JAMES P. WARBASSE, M.D.,

Chairman of the Historical Committee, Kings County Medical Society.

Read December 16, 1902.

During the past year the following members of the Kings County Medical Society have died:

Dominic Godfrey Bodkin, Henry Maturin Bishop, George William Cushing, John Edward Richardson, Joseph Henry Gallagher, Halleck Rathbone Maine, Algernon Sidney Leonard, Herbert Francisco Praeger, Edward L. Parker, Charles Adam Von Urff, Charles Henry Johnson, Malcolm Ethan Parrott, John Byrne, James Duncan Wade, William Henry Haynes, Delevan Bloodgood, William Henry Williams, William Augustus Pierrepont, William Henry Burnard, Peter Rouse Cortelyou, Edward Pendleton, Thomas Wilde, Frederick Jacob Kneuper, Henry Clay Mathews.

These are the names of students and practitioners of medicine, members of this society. Among them is represented medical fame which has extended beyond the borders of our own country, and the humbler practitioner who has walked the paths of the family doctor. Whatever else we may say, all were the exponents of a high calling.

Each one made his impression upon a circle. There were those who loved them; and, I dare say, there were those who aimed against them the shafts of malice. Each lived his life as he best saw the way to live it.

It may not have been given to all of these men to do great deeds; but they all have thought great thoughts. And, after all, it is the aim and the aspiration of the man, and the longings of his heart, by which he should be judged. The means and ability to execute and accomplish are another part of his organism.

We may be sure that in winter's storms and in summer's heat they have been ready to go and serve in the house of pain; and that they have given of their talents and of the substance of their strength vastly more than they have been compensated for. They gave much; and the best they received was the consciousness of work well done.

They were men of simple lives.

No word of ours here can add luster or detract from the honor of their names. They have honored themselves. Their lives are done; and their past is secure.

It is not for us to mourn their loss. Mourning is contrary to the best order of things. It is rather for us to rejoice in the good that they have done; and to consecrate ourselves to the bettering of the imperfect conditions amidst which they worked.

We may add to the honor and glory of their names in this one way:—by improving and elevating the profession with which they are identified. As the esteem in which the profession of medicine is held is exalted, in just that degree is the individual member of that profession elevated in his neighbor's regard; and to just that degree is luster added to the names and to the memories of the dead.

These men have passed into eternal rest. They live in the hearts of those who loved them; and out from them shall go an ever-widening circle. They have tempered the lives of thousands who have never seen their faces or heard them speak a word. And thus they pass on into immortality, while the great mystery of life and death eludes the biologist and the theologian, and transcends the power of human investigation to fathom.

A CASE OF PUERPERAL PSORIASIS.

BY A. M. JUDD, M.D.

Mrs. M. X., aged thirty-nine years, nativity Ireland, primipara. During the latter months of her pregnancy, she suffered from albuminuria with headaches, epigastric pain and edema of the lower extremities, all symptoms of the pre-eclamptic state, and, consequently, danger signals. Her pelvic measurements of which—owing to her extreme modesty—I was only able to obtain the external measurements at the time I first saw her were as follows: Interspinal, 10 inches; intercrystal, 11 inches; external conjugate, $7\frac{1}{2}$ inches.

Of course, I expected trouble at the time of labor, but not of the nature that it was my ill fortune to have. Labor pains began at about 4 A.M., October 31, 1902. The cervix dilated very slowly and the examination necessary later in the day gave me my first opportunity of finding my internal conjugate diameter, which was $3\frac{1}{2}$ inches. The head was not yet engaged.

On the morning of November 1st, finding dilation of the internal os and the canal of the cervix and of the external os had proceeded to a diameter of the breadth of two fingers and the lips of the cervix very edematous, manual dilatation was done and 20 gr. of quinine sulphate in solution given. Late in the afternoon, there

was a dilatation of the external os to a breadth of three fingers. Mother's and child's condition good. Head still not engaged. At 11 P.M., forceps were applied to the head, but after working for some time, and finding the child's heart beats were increasing in frequency, version was resorted to and delivery done as rapidly as possible, but a dead child was delivered.

There was a tear of the cervix and perineum, not very extensive, that of the perineum running up both sides of the vagina. This latter was repaired. For five days, the patient did well, although it was necessary to catheterize her several times. The first urine obtained after the labor was entirely free from albumen and there was nothing abnormal in subsequent specimens. On the afternoon of the fifth day, the temperature was $99\frac{1}{3}^{\circ}$ F. and she began to complain of a severe pain and tenderness in the right loin midway between the twelfth rib and the crest of the ileum, running forward and seemingly following the course of one of the lumbar nerves. The temperature rose gradually from day to day like a typhoid temperature, the pain increasing, and finally became so great that morphine was necessary to control it. The highest temperature, 103° , was reached on November 15th. There was then present at the site of the pain a feeling of deep induration, no edema over this; and the patient began to flex her right thigh and leg. There were no local symptoms over the spine that would point to spinal osteitis as the cause of her condition. Previous to November 15th I had thought that the patient was the victim of shingles. Deep pressure at this time over McBurney's point elicited pain, but rectal and vaginal examinations were negative. There was no pelvic inflammatory condition. A good result had been obtained from the repair of the perineum.

Between November 15th and November 25th the temperature ranged between 99° F. and 101° F. On November 25th, a leucocyte count showed 15,800 to the cubic millimeter. The area of induration had increased and felt nearer the surface. I then felt sure that there was present a post-peritoneal suppurative process. As the induration appeared from day to day to approach nearer the surface, exploration was postponed until December 1st; when a Hart syringe-full of foul smelling pus was withdrawn. On December 2nd, an incision two inches in length was made about two inches from the spinous processes of the vertebræ over the most prominent portion of the indurated area, and one pint of pus evacuated. Exploration with the finger revealed the presence of

the lower pole of the right kidney in the upper part of the abscess cavity. Neither the appendix nor the remains of an appendix could be found. The temperature dropped to normal two days after the operation and remained normal. The wound was entirely healed on December 25th. Examination of the pus by Dr. Fincke revealed the presence of staphylococci but no colon bacilli. The patient now walks without limping.

In the *Annals of Surgery*, 1899, Dr. Walter C. Wood reported two cases of the above condition and also the findings at autopsy of a case reported by Prof. Villeneuve of Marseilles in the 1891 surgical histories of the Hotel Dieu of that city. By permission of Dr. Wood, I report the autopsy in full as obtained from his paper.

"The history of his case before admittance to the hospital is meager. The second week after delivery, a drawing up of the left leg appeared, with pain in the left side of the abdomen, radiating to the left chest and down the leg. After three months of fever and confinement in bed, she tried to walk but was unable to extend the leg. Her condition on admittance to the hospital in the beginning of the fourth month after delivery, is recorded as follows:

The left leg flexed and radiating outward and the slightest attempt at forced extension caused extreme pain. Abdominal palpation showed a large fluctuating tumor occupying the left iliac fossa extending upward along the left side of the spinal column and outward under Poupart's ligament, tapering in both directions. By vagina, the tumor could be recognized high up on the left side when firm pressure was made from above. Her general condition was poor and a pronounced evening temperature was present during the three days she was under observation.

A small incision below Poupart's ligament evacuated two liters of pus. A sound was passed up the muscle sheath and a counteropening made in the back. General sepsis continued with the development of bed sores and a parotid abscess and death 37 days after operation.

At postmortem nothing abnormal was found in the peritoneal cavity. The adnexa was perfectly healthy except for slight adhesions. The uterus was larger than normal and its cavity contained a little yellow mucus. On injecting water by the inguinal incision, the whole psoas-iliacus muscle-sheath became distended, together with sinuses in the back and also the hip-joint by way of the bursa beneath the psoas tendon. The psoas-iliacus muscle, in its entire extent was a putrid mass infiltrated with pus." He concluded

his report in these words: "The autopsy made it clear that the principal lesion was well to the body of the psoas-iliacus muscle, which was totally destroyed. The other lesions were plainly secondary. Notwithstanding the existence of a vast iliacus-pouch, there was no peritoneal lesion."

This autopsy makes the title of this paper the only possible diagnosis that can be made in these cases, which are in the writer's experience very rare, this being the only case he has ever seen either in a large maternity service at the Kings County Hospital or in private work. In justice to the hospital, I will say that this case occurred in private practice, the confinement taking place in a tenement house. There is not any doubt that the infection occurred at the time of labor and the case is reported only that those who may be so unfortunate as to have septic conditions develop during the puerperium may have their attention drawn once more to this condition and not be satisfied simply with attention to the breasts, bowels and pelvic organs as the sources of the symptoms of such septic condition.

"THE OVERINDULGENCE IN FLUID AS AN ETIOLOGICAL FACTOR IN THE PRODUCTION OF STOMACH DISORDERS."

BY HUGH EDWARD ROGERS, A. M., M. D.

Read before the Brooklyn Medical Society, June 20, 1902.

I desire to report three cases more or less typical of several that I have treated of a certain class of stomach troubles, which, from personal observation, I do not think have been given the prominence they deserve.

CASE NO. 1, was that of a man twenty-five years old; a brewery collector by occupation. He states that his father, uncle and grandfather had suffered from "stomach trouble."

He gave a previous history of irregular habits, and always suffered more or less with his stomach. His trouble dated back a year or more. He came to me four months ago, complaining of the following symptoms: During the day, save occasional nausea and heartburn and the belching of wind, the only thing that bothered him was a feeling of fullness in the stomach, which was relieved by an attack of pyrosis. His spirits were usually depressed. There was no inclination to vomit. What he complained of most was an intense insomnia. He would go to bed at night fatigued and tired and fall asleep only to be awakened in the middle of the night with

a gnawing feeling in the region of the stomach—not actual pain—which would persist until he would cause emesis—vomiting a large quantity of fluid which burned his mouth. Thus relieved, he would go back to bed and fall asleep. The next day he would be exhausted. His appetite at no time failed him, and he always had an intense thirst which he satisfied at every opportunity, drinking in a day's time a large quantity of fluid. When night came he would have a repetition of the previous night's experience, and this he dreaded greatly. This condition persisted for quite a time. When he came to me, he was a nervous wreck.

CASE NO. 2, was a female, twenty years old; a seamstress by occupation. Her family history was negative. She stated that she had always been nervous and complained "off and on" of stomach trouble.

She came to me suffering from various dyspeptic symptoms; vomiting at times, nausea, partial loss of appetite; belched a great deal of wind; always had a feeling of slight pain or heaviness in the region of stomach; bowels constipated; sallow complexion.

She was a great tea drinker, always having a large cup of tea beside her while she was working, drinking almost unceasingly for the length of a day, besides taking two or three cups with her meals. She also suffered from insomnia as a result of the feeling in the pit of the stomach, spending many sleepless nights, not being relieved by emesis as in Case No. 1. When I first saw her she was in a condition bordering on neurasthenia.

CASE NO. 3, was a young man, twenty-seven years old, a traveling salesman. His mother died of phthisis. His father was well and strong. He had always enjoyed fairly good health except for stomach symptoms. Among other things he complained of loss of appetite. Always had great thirst. He drank no intoxicating liquors, but as his business required it, he drank soda, ginger ale and the like.

In a day's time he would consume a great amount of fluid. He always felt heavy, belched much wind. He stated that his spirits were always depressed, which incapacitated him for his work, which he went about in a half-hearted way. He was very weak from the want of a good meal of solid food. At times he felt hungry, but when the time came to eat he would hardly take enough to sustain him.

He suffered occasionally from insomnia, but not to the extent of the other two cases cited.

This brings me to the point I desire to make in reporting these three cases.

The overindulgence in fluid as an etiological factor in the production of stomach trouble, does not, *prima facie*, seem to merit special comment; but from a certain line of reasoning and from a study of the cases which have come under my observation, I have concluded that at least 25 per cent. of functional stomach trouble may be traced to an excessive amount of fluid.

The normal stomach is, as you know, about 35 centimeters, or about 14 inches in length, and about 20 centimeters, or 44.5 inches wide, and when distended may contain about three litres, or nearly three quarts.

For the stomach to perform its function properly there must be a normal standard. A certain proportion must exist between the fluids and the solid food ingested and the normal secretions of the stomach. Too little or too much means suppressed or increased action. A happy medium results in good digestion.

The normal stomach contents or juices, are in a constant state of activity, ready to grapple, so to speak, with the ingesta. If you have a decrease as a result of atrophy of the glands or otherwise, impaired digestion is sure to result, which may be more or less permanent. A transient increase, as a result of stimulation, may for a time have no baneful effects, but if it is long continued, it will surely result in disorder, sometimes of a serious nature, the result of overstimulation.

Again, to properly perform its function, the stomach must be so adapted that its walls approximate and are only separated by the presence of the ingested food or fluid, causing at the same time a normal flow of gastric juice. By means of peristalsis these juices are thoroughly incorporated with the food and by its churning motion cause it to be properly disintegrated, the processes of nature then performing their proper function, the cardiac and pyloric glands acting accordingly. The product known as chyme is produced ready for intestinal digestion where the principal action takes place.

As I said before, the gastric juice, to act properly, must be of a proper consistency; too much or too little hindering its action. Dilution must of necessity cause such a hindrance.

A dilution may be of a transient nature, and, because of the powerful absorbing qualities of

the walls of the stomach, soon passes away; but if it is kept up inordinately by the constant addition of fluid, the acute state tends to become chronic with attending disorganization.

If one partake of an extra quantity of fluid and add it to the normally secreted gastric juice, it follows as a natural sequence that dilution will follow. This, if not excessive, may be overcome. Go a point beyond, and by extra quantities of ingested fluid, you cause still further dilution and whatever decreased power to digest existed before, is still further deteriorated until it comes to such a stage that it is practically rendered nil.

With this condition, one partakes of a meal. The stomach is full of fluid; its walls do not approximate as they properly should. A sort of a pseudo-peristaltic action takes place. The stomach tries again and again to attack the food but fails, and as a result of excessive effort and work, it tires out. True, if given time without further addition of fluids it will accomplish its end, and cause proper absorption of food or pass it along to the small intestine. But if by constant addition and repetition you keep the stomach full of fluid, it follows, as the night the day, that there will be evil consequences.

Absorption is a natural process, and fluids will be absorbed in time if without further additions. The stomach will then accomplish its digestive action on the solid food. But the time consumed is but that allotted to normal digestion—as a result of the overexertion and overwork there is an inhibitory action exerted on the coats of the stomach and the glands contained therein, which causes a temporary paralysis of the nerve filaments—the stomach acting neither one way nor the other, the contents remaining as so much dead weight.

The normal reaction of the stomach is acid.—With stimulation as a result of a slight overindulgence, this acidity is increased. It becomes excessive if you carry it beyond a certain point, and the condition known as hyperacidity exists. This in itself acts as a potent irritant, exerting an inhibitory action, which, together with the weight of the fluid, forms the starting point of many a stomach disorder. If acids check acid and increase alkaline secretions, it may be presumed that the reverse will also hold good, that alkalies increase acid and check alkaline secretions. The reaction of most drinking fluids, such as beer, tea, coffee, soda, etc., is almost invariably alkaline; the result being that when one partakes of excessive quantities, he increases the

acidity; adds fuel to the flame. And further, this excessive acidity of the stomach will in turn check the normal alkalinity of the intestinal contents, resulting in stagnation, or a general stopping up of that portion of the alimentary canal. The food does not progress onward in its natural order, and there results a large mass or admixture of partly digested food and fluid; highly acid in reaction, as is evidenced in examining the stomach contents.

The treatment of these cases was of the simplest kind and practically the same. I dieted them on fluids, cutting them down to as small a quantity as possible.

The only fluid taken in the first case was one glass of hot milk with his meals. I did not restrict him or the other cases in their solid diet.

In Case 2, I cut off tea drinking entirely; and in Case No. 3, cut out all drinking between meals.

The hyperacidity in these cases persists for quite a while, and for this a purely alkaline treatment is indicated. As an antacid there is nothing better than bi-carbonate of soda used alone; but its effect is not lasting. The combination recommended by Ewald

R

Magnesii Carbonat.

Bismuth Salicylate

Natrii Bicarb., equal parts,

is excellent, one drachm being taken after each meal and before retiring. Its effect is lasting and in my hands, has given fine results.

REPORT OF THE ANNUAL ELECTION OF THE MEDICAL SOCIETY OF THE COUNTY OF KINGS, HELD JANUARY 20TH, 1903, AT 1313 BEDFORD AVENUE.

President, Dr. Charles N. Cox; Vice-President, Dr. John E. Sheppard; Secretary, William H. Hubbard; Associate Secretary, Dr. W. C. Woolsey; Treasurer, Dr. O. A. Gordon; Associate Treasurer, Dr. John R. Stivers; Directing Librarian, not elected;* Trustee, Dr. Henry A. Fairbairn; Censors, Drs. Robt. J. Morrison, Walter C. Wood, J. M. Van Cott, William F. Dudley; Delegates to the State Medical Society, Drs. D. E. Warren, R. B. Anderson, B. D. Harrington, Alex. Rae, J. J. Keyes, E. H. Mayne, W. H. Maddren, W. S. Simmons, Jr., R. W. Westbrook, C. E. Scofield. Tellers, Dr. C. F. Barber, Chairman, Dr. A. H. Hussey, Dr. Edward G. Zabriskie. Total number of votes cast, 212.

*The result of the balloting for Directing Librarian was a tie. By a ruling of the President in accordance with the By-laws, a ballot for Directing Librarian will be held at the next Monthly Meeting, in February between the hours of 8.30 and 9.30 P. M.

PROCEEDINGS OF SOCIETIES.

LONG ISLAND MEDICAL SOCIETY.

STEPHEN L. TAYLOR, M.D., EDITOR.

The 116th regular meeting was held on the evening of Jan. 6, 1903. The President, Dr. R. H. Pomeroy was in the chair. The scientific program was as follows:

Paper: Report of a Case of Laceration of the Subclavian Artery by Fracture of the Clavicle. Dr. W. E. Butler.

Discussion.

DR. WESTBROOK said that he did not know of any such case on record. Dr. Stimpson in his book on fractures and dislocations said that no case of rupture of the subclavian artery from fracture of the clavicle had been reported. He mentions a case of rupture of the subclavian vein from which a large hematoma formed, which was opened. The patient died from the hemorrhage following incision of the hematoma.

Paper: Report of an Obstetrical Case with Complications. Dr. Judd.

Discussion.

(Dr. Judd's Paper.)

DR. POLAK asked if the laceration of the cervix could have extended into the broad ligament. Dr. Judd said that the laceration did not extend beyond the cervix. He also stated that the induration appeared on the 15th day; there was at no time pyuria; no tubercular tendency.

Dr. Polak said that cases of lumbar abscess had been reported following forceps application.

DR. WESTBROOK called attention to a paper by Dr. Wood, which appeared in the Annals of Surgery, entitled Post-puerperal Psoriasis, in which several of these cases are reported. The complication usually developed one or two weeks following delivery. The flexion of the thigh on the affected side was one of the first signs. The pus follows the psoas muscle and in each of these cases was opened at a different point.

Paper: Report of a Case of Dizziness, resulting from Otitis Media. Dr. Collins.

Case, a male, 32 years of age, was sent to me about 6 months ago, complaining of poor vision and dizziness. Examination of his eyes at that time showed vision $\frac{20}{20}$ in right eye, $\frac{20}{100}$ in left. Ophthalmoscope examination then showed right

eye to be hypermetropic; left eye showed hypermetropic astigmatism. Full correction glasses were ordered for constant use. The glasses were worn and gave him relief from his headaches and made him much more comfortable, but did not relieve the vertigo. At no time did he complain of his ears. He was sent to me again 4 weeks ago, for an examination of his ears. He then stated that he had been hard of hearing in his right ear 9 years. There was present neither tinnitus nor discharge; a history of repeated earaches on that side when a child was elicited. Examination showed a medium sized scar anterior to the malleus; handle of drum retracted and the malleus resting against inner tympanic wall. Hearing distance for the watch, $\frac{1}{4}$ in.; whisper, 5 ft.; voice, 6 ft. Tuning forks, B.C. > A.C.C & C₁. A.C. > B.C. C₂ C₃ C₄. There was a tendency to fall when standing with his eyes closed, also when on one foot.

Inflation with Politzer air douche changed things considerably. The scar was driven forward, and the position of the malleus changed noticeably. I then divided a thin band of scar tissue, which ran directly across the scar.

Three days later he was seen again, and said that the dizziness had nearly all left him.

The incision through the scar had healed and the drum was again retracted. This time I used the eustachian catheter and inflated again. Hearing distance, watch 3 in., whisper 10 ft. Tuning fork reaction changed, viz.: B.C. > A.C. all except C₄.

Discussion.

DR. BRAISLIN. Vertigo is caused by any irritation of the semicircular canals, as from brain tumor, for example, when the pressure of the intra-labyrinth fluid is increased. The external semi-circular canal has been injured in mastoid operation, with a like result. Vertigo may be caused by syringing with cold water or by a foreign body in the auditory canal, and is one of the symptoms in Ménière's disease. In this case possibly wider incisions in the scar tissue might give more relief. Dr. Braislin asked if there was any nystagmus. Dr. Collins said there was not.

DR. HOWE said that he thought there were many cases of vertigo attributed to the middle ear which were not caused by any ear trouble. He mentioned one case, which he said was similar to four others which he had in mind, in which there was vertigo with pain in the ear. The trouble was thought to be in the middle ear. The

vertigo became more marked and several physicians agreed on a diagnosis of Ménière's disease. Later the symptoms disappeared with the correction of digestive disturbance which the patient had.

DR. CORNWALL presented a patient with acute dilatation of the heart. The apex beat is located three inches below the nipple in a straight line. Murmurs of mitral and tricuspid insufficiency can be clearly made out.

A PRELIMINARY REPORT OF TWO UNUSUAL CASES.

E. E. CORNWALL, M.D.

This is called a preliminary report because the cases are still under treatment, and their final outcome is still in doubt.

The first case shows, among other things, what appears to be a rheumatic orchitis.

The patient, a man of 45, gives a remarkably good family history, with just a trace of rheumatism in it. His own previous medical history is absolutely negative with the exception of the facts here given. When quite young he had an attack of gonorrhea, but recovered completely, and never after had symptoms in any way referring to it. About 18 years ago he had an attack of inflammatory rheumatism simultaneously with an attack of double lobar pneumonia. This occurred in the far West, and as soon as he was able to sit up he was carried 60 miles to the nearest railway station, and shipped home. Since that time he has had many attacks of phlebitis, apparently rheumatic, which have occurred mostly in the superficial veins of the abdomen and thighs. He has varicose veins in the legs, and the pulse of mitral regurgitancy, as shown by the sphygmograph, though no murmur can be heard. During all these years he has been actively engaged in the practice of a profession.

Last spring, after an unusually hard winter's work, he suffered from a mild degree of nervous debility. In May he had an attack of phlebitis in the thigh, and also in the right spermatic vein, which was soon followed by pain and swelling in the right testicle. Shortly after this last development he went to the country, where he stayed until September, when he first came under the writer's care. During the summer the inflammation of the testicle continued in a sub-acute state, with one acute exacerbation. The nervous debility increased, and there were several attacks of phlebitis.

Examination in the early part of September

showed the testicle enlarged to about three times the size of its fellow, moderately tense, moderately painful, especially in spots, with fluid in the sac, and possessed of a slight amount of testicular sensation.

Anti-rheumatic treatment and tonics were given, and applications of iodine ointment and 50 per cent. ichthyol ointment made to the testicle. The patient was kept in bed two weeks, and in the house two weeks more, and then allowed to attend to his business with a certain amount of restriction. At the present time his testicle is somewhat reduced in size, but not much. The sensitiveness is very much diminished, and testicular sensation seems to be very faint.

Rheumatic orchitis is a very rare affection, and the writer hesitates to make that diagnosis, but the rheumatic history, with the recurrent attacks of phlebitis, especially the attack of phlebitis in the region of the inflamed testicle, and the utter absence of anything else of significant bearing (for the gonorrheal history is so remote and so barren of sequels that it drops out of consideration), make that diagnosis highly probable.

The second case, described by its most marked symptoms, might be styled a case of *diabetes aluminicus*.

The patient, a man of 25, gives absolutely no previous history of anything which could have a possible bearing on his condition except a fall from his carriage. Before this sickness he enjoyed even superlative health, according to his statement. Last August he was thrown out of his carriage, and fell flat on his back. He was dragged a short distance, but got up without feeling much hurt, though a little dazed. He gave no serious thought to the accident. Two or three weeks later he noticed that he had to get up nights to pass his water, and this frequency of micturition increased, as did also the quantity passed, until, by the middle of December last, when he first consulted me, it had reached 10 or 12 pints in 24 hours. This urine was of specific gravity 1007, and contained about 10 per cent. of albumin, but no casts, and no sugar. Contemporaneously with the increase in amount of urine passed the patient experienced a progressive loss in weight, which amounted to 40 pounds between August and the middle of December. He has also suffered from dyspepsia, and is anemic—hemoglobin 70 per cent. The X-ray showed the kidneys to be in normal position and apparently normal in size.

He was put on a diet of milk and buttermilk and eggs, and given the glycerophosphate of lime,

the lactate of strontium, the peptonate of iron, and anti-dyspeptics. Under this treatment he gained two pounds of weight in ten days, and the quantity of urine diminished one-half, though the percentage of albumin remained about the same, and his general condition was greatly improved. In addition to the above treatment, he is now taking static electricity, administered by Dr. Hodges, three times a week.

If it were not for the albumin in the urine of this patient, the diagnosis would be, traumatic neurasthenia with diabetes insipidus; and in the absence of anything else to make a diagnosis on, the writer inclines to the opinion that this patient's condition is essentially due to some shock to the nervous system received in the fall from the carriage. It is possible to conceive of a paralysis of the renal vasomotor system from such a cause, or other interference with the nervous control of the kidneys, producing a state of permanent congestion of the kidneys with albuminuria as well as polyuria; and a long continued congestion of the kidneys from any cause can produce structural changes in them. If this patient recovers, the hypothetical diagnosis above suggested will be borne out; and if he goes on to have a chronic Bright's disease it will not be absolutely contradicted.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.—SECTION IN LARYNGOLOGY, RHINOLOGY AND OTOTOLOGY.

Stated Meeting, November 20, 1902.

WILLIAM C. BRAISLIN, M.D., Editor.

The Chairman, HENRY A. ALDERTON, M.D., in the Chair.

Assigned subject: MALIGNANT NEOPLASMS OF THE EAR, NOSE AND THROAT. The Ear, S. H. Lutz, M.D.; The Nose and Pharynx, A. C. Howe, M.D.; The Larynx, W. F. Dudley, M.D.

MALIGNANT NEOPLASMS OF THE EAR.

DR. STEPHEN H. LUTZ.

The malignant neoplasms of the ear most frequently seen are sarcoma and carcinoma. Angioma may be described here, not on account of its destruction of tissue, but on account of its liability to cause death from hemorrhage.

Carcinoma is seen more often than sarcoma.

Connal, of Glasgow, says there have been only four cases of carcinoma and two of sarcoma out of a total of 15,000 cases in 12 years in Glasgow Ear Hospital. Bürkner says one case in 3,000. Asch in 1896 found only 10 cases in literature. Habermann says reports show about one case in 5,000 to 10,000. Only 40 cases have been reported in all, excluding those of the pinna.

Carcinoma is more frequent externally, and sarcoma is seen more often internally, deep in the middle ear.

Primary carcinoma of the external ear appears more often than in any other part of the ear. It begins in the pinna or lobule or tragus and later extends to cartilage and temporal bone. It appears first as a nodule or wart usually at the upper part of helix, then breaking down it becomes an ulcerated sore, perforates the cartilage, bleeds easily, assumes then a characteristic appearance irregular and sharply outlined by inflammation and infiltration. Sometimes there is slight pain early, more often no pain at all until later on in the disease.

The same causes operative in other parts of the body in the production of malignant growths act in the ear to produce this condition. The growth of carcinoma is slower here than in other regions of the body on account of the cartilaginous framework and the poor blood supply. The progress of carcinoma of the pinna is very slow indeed; usually there is a history of several years duration in the auricle before the case presents itself, and then the growth has not as a rule progressed too far to operate on. The glands in the neck do not show involvement until several years after disappearance of primary growth. Amputation of the whole ear, or at least greater part, is the only means of treatment although a few cases are reported cured by caustics or cautery. The X-ray has been used. Carcinoma also appears in the meatus or canal. It is more apt to be in the posterior canal wall, and more often in right ear than in left, more often it grows inwardly than outwardly.

Carcinoma of the middle ear very frequently follows eczema or long continued suppuration, where the mucous membrane of the tympanum has become converted into epidermis and where carious disease is about exhausted.

Schwarze, Lucal, and Kipp agree on this and describe cases. The disease appears usually after thirty years of age, in a diseased ear. Cases after eczema are reported by Treitel, Krepuska, and Kretschman. Free discharge, foul odor, polypoid growths which bleed easily, are tender and re-

turn rapidly after seeming complete removal are symptoms of malignancy.

Before these rapidly recurring polypoid growths are subjected to microscopic examination the disease has generally extended rapidly and involved the mastoid. Any partial removal here hastens the growth as it does so often in other parts of the body. With extension of carcinoma to deeper parts of ear there is extreme pain, often hemicrania and, as the disease progresses, deafness increases, paralysis of the facial nerve, due to erosion of Fallopian canal, involvement of inferior maxillary articulation, dizziness, involvement of carotid, or brain, with all kinds of brain symptoms, occur.

The external ear may be enormously enlarged or atrophied or gangrenous with large cauliflower growth in the meatus.

Metastases in glands in the neck occur and other metastases. Extension to the mastoid is shown by increased pain on pressure there, thinning of mastoid external plate, a certain elasticity Habermann calls it, very foul and acrid discharge, sometimes containing bone sand or small sequestræ. When the mastoid is opened a soft doughy, widespread, burrowing growth with extensions in every direction is found. Politzer relates a case where numerous cancer-cell nests were found in a temporal bone remote from the growth. Other cases reported by Wilde and Roudot.

The diagnosis between carcinoma of middle ear or mastoid and advanced carious middle ear disease is rather difficult because early examination of polypoid masses may not show cancer tissue at all. It is only the rapid recurrence after repeated removal and repeated microscopic examinations that determine malignancy and usually the diagnosis is established too late to allow of any operative treatment. When possible, operate. The glands must be thoroughly cleaned out. Where operation is not possible, cleanliness and relief of pain by opium are the only means of treatment.

Roudot's case showed extreme destruction of temporal bone without causing early death. Gruber and Schwartze relate similar cases.

The prognosis is very bad. Usually one to one and a half years is the length of life after the appearance of carcinoma in the middle ear, although Treitel relates a case that lived eight years.

Secondary cases of involvement of ear are reported by Politzer, Gruber, Knapp, Toynbee, Wilde, and others. Schwartze says secondary growths come most often by way of the parotid from tongue, lower jaw and interior of skull.

There are about 60 cases reported in the literature of sarcoma in the temporal bone, either directly in the ear or very close to, and involving, the ear.

All kinds of sarcomata are found, arising most always from the periosteum; a few are epithelial in character. The round cell and spindle cell formations are more often seen. Myosarcoma and endothelioma are seldom seen. Haug and Kuhn each report a case of melano-sarcoma. Osteo-sarcoma is described by Wilde, Böke, and Wichart.

Sarcoma may originate in the external ear as an ulcer in the pinna or lobule, but this is rare, as sarcoma grows generally within the ear, while carcinoma is more common on the external ear.

This disease springs from the periosteum of the canal, the tympanic cavity or the mastoid and the dura covering the temporal bone. More frequent in early youth than in old age. Nothing is known of the cause of the disease, but it most often follows injury or long continued ear disease, though many cases are reported in previously healthy ears in very young children. Kuhn says, the growth arises from embryonal spots in the basement substance.

The ear becomes moist, blue-red spots appear deep in the canal, these bleed easily and reappear rapidly after removal by curette. These growths are tender and often cause severe lancinating pains in ear. This pain is an early symptom.

The extension into mastoid follows rapidly with swelling of the posterior canal wall and external plate of the mastoid. If the growth breaks through the bone in any place, the fluctuation can be felt through the skin and when this is opened the large spongy growth has been found to have destroyed the bone altogether and occupying its place, pressing on the dura. In youth the progress of the disease is very rapid, in old age much slower.

The tumors appear too as polypi in middle ear or attic and only the microscopic examination and the extremely rapid recurrence after removal make diagnosis possible early. There is free, foul, purulent discharge and very severe pain which increases as disease progresses. There is paralysis of the facial nerve and when growth invades the labyrinth, dizziness and deafness. If it continues on into brain, hemiplegia follows. The hypoglossus, vagus, glosso-pharyngeus, trigeminus and abducens are affected. The glands are enlarged in neck. Sinus-thrombosis, meningitis or deep abscesses do not occur, according to Hartmann, Haug, Burckhardmerian. Death is

caused by cachexia, often in a few months, seldom more than one year.

Secondary involvement of temporal bone occurs and a number of cases are reported by Kuhn, Knapp, Panse, Moos, Charazac, Habermann, Vermeyne, Pomeroy, Stetter, and Krepuska.

Chloroma is a greenish variety, nature unknown, round cell type of growth. Körner first called the attention of otologists to it, and he has gathered literature of 20 cases. This grows quickly in youth, is symmetrical and Körner's case showed exophthalmos, paralysis abducens, dilated pupil, dilated veins on forehead, and double ear discharge. Diagnosis of thrombosis of both cavernous sinuses was falsely made. Autopsy showed a greenish growth in both temporal bones, transverse sinus, orbits and muscles over temporal bone.

According to Habermann the diagnosis of primary sarcoma in temporal bone is very difficult in the beginning because the symptoms, pain, discharge, polypoid growths, swelling, and tenderness of mastoid, are present in other forms of ear trouble. The microscopic examination is the only sure means of diagnosis although rapid regrowth of polypoid masses after removal is suspicious. Secondary cases are very difficult to diagnose and are nearly always diagnosed in too late a stage to do anything, that is after growth has broken out on the surface.

The difference between sarcoma and carcinoma is one of age largely, the former occurring more often in youth, and the latter in old age. The prognosis for either disease is bad as a rule because diagnosis is made too late, except in the few cases which occur externally and are easily watched from their beginning.

Angioma may be added here. It may be reckoned among benign tumors only so long as the process of hypertrophy is confined to enlargement of vessel walls and to the formation of connective tissue. Kuhn classes angioma with sarcoma. Politzer relates one case. A large orange-sized growth, probably from the lateral sinus, extended into mastoid process and appeared as pea-sized, blood-red nodules seen in the canal. Microscopic examination showed cavernous angioma with bony trabeculae.

Growths of internal ear are very rare; in fact primary sarcoma or carcinoma have never been reported; the few cases being secondary cases only, at least as far as my research has extended. Neuroma and glioma are rare. Habermann and Politzer describe some tumors attached to the nerve like pears on a branch. The stalk projects

into internal meatus and interrupts connection between nerve and brain. Seventh nerve involved usually. Deafness and brain symptoms follow.

Report of Case of Sarcoma of Mastoid.

A boy nine and a half years old came to me in July 1898, on account of suppurating ear. His family physician had removed a polyp from the ear some weeks before. This polyp returned and his parents wanted this cured as they were dissatisfied with quick return of the growth. I removed the polyp several times, frequently finding the growth as large in two or three days' time as it was when I removed it. After some time I advised more extensive operation as he complained of extreme pain all over side of head and the mastoid was very tender. The operation was finally done in November 1898. The first blow on the chisel carried my instrument through the bone and into cavity of mastoid. This was all one large cell filled with spongy, foul smelling, widespread mass. I cleaned this out as well as I could as the bone was very nearly all gone, the dura and sinus being exposed, but both seemed healthy. After one month the growth was protruding from the wound about as large as a plum and another tumor had appeared over parotid. There was facial paralysis. I attempted to clean this up a second time but the boy was in such poor condition I could not keep him under ether very long. I incised the parotid and shelled out a jelly-like mass which was attached to capsule of gland on inner side. There was a spongy, foul-smelling growth in every direction the probe seemed to take in what had been the temporal bone. The boy grew rapidly worse, the pain was unbearable. He took as high as one grain of morphine every two hours and would only have about one half hour relief from pain. There was paralysis of arm and leg on opposite side, difficulty in breathing and swallowing on account of invasion of neck and mouth by growth. The boy died in January 1899. The tumor was more than half as large as his head when he died. I had some parts of the tissue removed at operation. Examination showed small, round cell sarcoma with number of giant cells.

Report of Case of Angioma.

A boy, nineteen years old, went to Manhattan Eye and Ear Hospital to Dr. Berens' clinic. He was unable to hear on account of stenosis of the canal which followed frozen ear 12 years ago.

He was assigned to me for operation on the canal. He had what appeared to be a very thick false membrane about three-eighths of an inch inside of external meatus. Beyond that there seemed to be nothing.

I made one crescentic incision and encountered a most profuse hemorrhage. It was fully as extensive as that following accidental damage to healthy lateral sinus wall. Tight packing controlled this. A number of the surgeons of the Hospital were present and all agreed that it was probably an angioma. The incision healed in about five days and the boy left the hospital and would not consent to any further treatment. So I lost track of him. He returned about one year later to the clinic but we lost track of him again after a short time.

According to *Blau's Encyclopädie der Orenheilkunde*, Politzer is the only one who has described a case. Habermann in that book states that angioma of this type springs from the lateral sinus. Politzer says that angioma of the ear is apt to come from frost bite.

MALIGNANT NEOPLASMS OF THE NARES AND NASOPHARYNX.

BY DR. ALEXANDER C. HOWE.

The study of the malignant neoplasms of the nares is practically limited to the study of sarcomas. Primary carcinomatous growths in the nares are too rare to justify their full consideration in a short paper. There is no question but primary carcinoma of the nares has followed a traumatism, but they form a very small number of the cases reported. The treatment, except in the very earliest stage, is purely palliative. Theoretically, a limited growth may offer chances of relief by excision; but carcinoma is almost never seen in that stage. Roentgen rays and ligation of external carotids have been used and will be more fully discussed in the treatment of sarcoma.

Sarcoma of the nares is fairly rare and yet each case has created so much interest and study that our familiarity with its literature is out of proportion to its frequency.

This growth usually takes its origin from some inflamed intra-nasal area of the mucosa and from an area undergoing rapid polypoid change or formation. Polypi may possibly undergo a sarcomatous change. Adenomata in Mayer's recent case showed decided sarcomatous metamorphoses.

The growth is most frequently found on the anterior part of the septum or on the middle tur-

binial. Gibb of Philadelphia recently reported a case of sarcoma of the ethmoidal cells. The nasal floor, antrum and nasal process of superior maxilla have been the site of such growths. Sarcoma may in fact begin in any of the nasal sinuses and extend into the nasal cavity or invade the nasal sinus from the nares. The destructive pressure of this growth is so great that it is usually difficult to determine its source.

The growth may occur at anytime of life, appearing as early as the sixth year or as late as the eightieth. Its greatest frequency seems to be about the thirty-ninth year. In some cases the growth is extremely rapid, nasal stenosis has been produced in two weeks after extirpation and complete stenosis has resulted from a three months' primary growth. The primary growths seem to be more rapid early in life. Later growths have existed 12 and 14 years before necessitating operation. In other cases a few months' growth produced a condition where surgical interference was absolutely necessary.

The earlier symptoms of sarcoma are epistaxis and nasal stenosis. The hemorrhages are severe and frequent, even early in the disease. In no other nasal condition is this symptom so characteristic. The other symptoms are due almost entirely to pressure and extension of the growth. The pressure produces great pain, great bony destruction, great facial deformity, exophthalmos and double vision. This distortion of the facial features is known as "frog face." The growth may extend downward through the anterior nares to the chin; backward so as to interfere with respiration and deglutition; upward into the cranial cavity and outward filling the larger nasal sinuses.

It varies in its structure, hence is designated as a fibro-sarcoma, adeno-sarcoma, perivascular-sarcoma and melano-sarcoma. It varies from a dirty grayish color to a dark grumous appearance but always shows a persistent tendency to bleed after slight manipulation.

Its treatment is entirely surgical. The injection treatment of Coley's fluid has not proven satisfactory or rarely of any benefit. Massey of Philadelphia has recently used electrical sterilization with favorable results in sarcoma of the neck. The process is a cataphoric diffusion of the salts of mercury and zinc through the growth for a considerable length of time—two or three hours—under a general anesthetic.

Roentgen ray is of doubtful utility in deeply seated growths, its best results seeming to be in the most superficial growths.

Complete extirpation of the mass when it is

pedunculated and its pedicle is accessible, offers the only possible means of eradicating the disease. No recurrence is reported in a case of pedunculated sarcoma of the septum where a large section of the septum was removed. No return occurred in several cases of sarcoma of the middle turbinal. In all of these cases the growth had not extended into the nasal sinuses and complete extirpation of a limited origin was possible. Bristow reports a case in which the growth has not recurred in three years. The sarcoma filled one nares and originated from the middle turbinal. It was rapidly removed by the curette. Free hemorrhage prevented complete extirpation. The growth returned and a more radical operation was possible with no return to the present time.

Recently under the leadership of Dr. Dawbarn of New York an attempt has been made to starve these growths of the nares and superior maxilla by excision of parts of both external carotids and cutting off collateral circulation by paraffin injections. In one of Dr. Bristow's cases there was almost complete relief from the terrible pressure pain. I am unable to give the results of Dr. Dawbarn's work as his monograph has not yet been published.

Nasal adenomata do not call for attention in this paper except so far as they may undergo sarcomatous metamorphosis. Mayer's case already referred to exhibited such a change.

In the naso-pharynx, the sarcomatous and carcinomatous growths are so rare as to be almost excluded. The only neoplasm whose frequency and destruction warrants notice is the fibromata or fibropolypi. This usually originates from the basilar process, the ethmoidal or sphenoidal bones. It occurs from the tenth to the twenty-fifth year and disappears after that time of life. It occurs chiefly in male subjects and is supposed to be due to an irregular evolution—during the growing period—of a tissue abundant under the base of the skull.

Its symptoms depend upon the direction and extent of the growth. It may invade the nares and produce all the symptoms and deformities of a nasal sarcoma; it may invade the cerebral cavity. It usually invades the pharynx and interferes with respiration and deglutition. The most pronounced symptoms are nasal stenosis, dyspnea, pain from pressure, free discharge and severe hemorrhage frequently occurring. Deafness in one or both ears rarely results and a peculiar sense of fatigue and drowsiness exists that is out of proportion to what might be due to interference with respiration.

The mass is decidedly hard unless it is fibrocystic in structure, smooth, red or purple according to freedom of circulation, and frequently ulcerated.

Its structure is almost entirely fibrous—few if any elastic fibers being found. The internal blood vessels are embryonic in structure, but small. The blood vessels in the enveloping membrane or tissue are large and numerous. To this peculiar structural formation are due the severe hemorrhages from its abraded surface. The fibrous structure of the interior and the embryonic walls of the interior blood vessels account for the severe hemorrhage that accompanies a partial removal of the mass.

The prognosis is bad unless the mass can be removed early or unless the growth occurs near the twenty-fifth year. In one case, the growth had put a patient in his twenty-fourth year in such an extreme condition that surgical interference was impossible, yet in a year the growth had entirely disappeared without treatment.

The growth, fortunately, is usually pedunculated, hence its removal by cutting and tearing away, by the cold and cautery snares can be accomplished. This is done through the nares, mouth or by resection of the superior maxilla. The last procedure was formerly resorted to frequently. At present the snare is the most frequent method used followed by thorough cauterization of the stump of the pedicle.

CANCER OF THE LARYNX.

BY DR. WILLIAM F. DUDLEY.

Malignant neoplasms of the larynx are of comparatively rare occurrence. Approximately one per cent. of all patients seeking treatment for laryngeal disease have benign growths and less than one seventh of one per cent. have malignant growths.

In order of frequency, 38 per cent. of all laryngeal tumors are papillomata, 32 per cent. are fibromata, 13 per cent. epitheliomata, five per cent. cystomata, and two per cent. sarcomata. (Shurly, p. 563.)

It is difficult to understand why the larynx is not more often invaded by malignancy. The glottis is the narrowest portion of the upper air tract. It is exposed to the never ceasing respiratory current, which often carries foreign particles of an irritating or even an infectious nature, and the incessant motion of the vocal apparatus in both respiration and phonation furnishes a

mechanical irritation which would encourage any malignant tendency.

It is a matter of general comment in text-books of recent date that cancers of the larynx are decreasing in frequency of occurrence.

In view of their intractability to treatment this is a cause for congratulation, and it is undoubtedly due to the greater ability of the modern surgeon to deal with intra-laryngeal disease in its initial stages and thus prevent the later, and more serious, sequences.

The parts most often affected are the vocal bands, the ventricles, the ventricular bands, and the aryteno-epiglottic folds. Von Bruns (Shurly, p. 564) reports that out of 1,100 cases of laryngeal cancer, 836 involved the vocal bands. Histologically, the varieties of malignant growths found here are the epitheliomata of either the squamous or alveolar type, and the sarcomata of the small round cell or the spindle-cell type. Intrinsic sarcomata are exceedingly rare; when occurring in the larynx, it is usually the result of extension from the pharyngo-larynx.

The epitheliomata present their usual classical structure. The epithelial elements invade the sub-mucous tissue and on cross-section exhibit pearls or nests of cells.

Laryngeal cancer usually attacks patients in the latter half of their lives, and is found in males much oftener than in females, in the proportion of ten to one.

Heredity, without doubt, exerts here a strong influence in the development of malignancy. Chronic inflammation of the larynx lowers the vital resistance to infection and is, therefore, an important predisposing cause. Abuse of the voice by continued shouting, as practiced upon the stock exchange by brokers, or by auctioneers, or by street-venders favors any latent tendency to cancer. I have seen several patients having cancer of the throat who were engaged in these or in similar lines of business, but I do not feel warranted in stating that the severe strain upon the vocal apparatus was alone the cause of the cancers. On the other hand, professional singers and speakers who use their voices severely, but in a scientific and trained manner, are rarely affected by malignant disease of the throat.

In its method of onset, cancer is as insidious and crafty as it is later lawless in development, and intractable to treatment. The neoplasm is generally well established before the surgeon is consulted, for the reason that pain is not an early symptom and the case is regarded as simple laryngitis until the persistence of the conditions

demands an intra-laryngeal examination. When the interior of the larynx is involved the first symptom is hoarseness, constant and of increasing severity. If the free margin of the vocal bands is included the interference with phonation is marked. If the laryngo-pharynx or post-laryngeal wall is attacked, difficulty in deglutition may be the first symptom noted. Hoarseness, however, is usually the first evidence of trouble. It is not always severe and may be the only given sign for several months, the general health of the patient maintaining its usual standard. On inspection, the affected area is hyperemic and swollen, the tumor is ill defined in form and the surface shows irregular nodules projecting from the sub-mucous tissue. At times the surface may be smooth and the congestion moderate; this, combined with the paucity of objective symptoms and their slow development, renders the differentiation from benign disease a difficult problem. When the growth is on the vocal bands, its color is of pale rosé hue at first. Small ulcers, round and shallow, appear quite early. In cancer of the ventricle or indeed of any of the less tense tissues of the larynx, the congestion is more diffused and of an intense, angry red color. The tumor attains greater size before ulceration commences, but when it does occur its progress is more rapid and its penetration is deeper.

After the neoplasm reaches the second or middle stage of its career, the symptoms, both subjective and objective, multiply with frightful rapidity, and the vitality of the patient is markedly impaired. The most prominent symptoms are now severe dysphonia, painful cough with expectoration of viscid foul muco-pus, dysphagia due to enfeeblement of the constrictor muscles and to mechanical obstruction, dyspnea, and intense pain of a lancinating character. The peritracheal and cervical glands now show the signs of infection. In the initial stages of the disease the laryngoscope gives aid of questionable value, but in advanced growth the picture is typical. The tumor is utterly lawless in development. Its size is often so great that not only is the anatomy of the affected portion entirely transformed, but the healthy or uninvolved structures are forced out of their normal position and distorted. There may be numerous areas of ulceration, or these may unite and present an extensive slough, the destruction involving not only the sub-mucous tissue, but also the cartilages of the larynx. The edges of the ulcers are indurated and irregular in outline. The discharge has the characteristic odor of malignancy.

Impairment of the voice is always present, due at first to a moderate laryngitis, later, aphonia may result from the encroachment of the tumor or from paralysis of the recurrent laryngeal nerve, caused by pressure upon it from enlarged peritracheal and bronchial lymphatics. The prognosis is most grave. Death results from asphyxia, from exhaustion or from septic pneumonia, due to inspiration of infectious material.

In its later development cancer of the larynx may be said to have its name stamped upon its surface, but in its early existence when a differential diagnosis is most important, the task is often difficult and perplexing. The tumors of a local character most resembling cancer, are papillomata. These are of a still more gradual growth, they are not associated with glandular enlargement; infiltration and engorgement of the adjacent structures is slight or absent; deglutition and phonation is not painful; the sputum is not blood stained; there is no salivation; hoarseness exists when the vocal space is involved, but it is moderate, the progress of development in the benign neoplasm is so slow that the vocal apparatus seems to accommodate itself to the new anatomical conditions, and finally there is none of the appearance of cachexia, constitutional depletion and mental distress which makes so impressive a picture in the presence of malignancy.

Syphilitic gumma is not a growth of such evident surface origin. It does not start as a slight superficial and painful nodule but is a smooth evenly formed neoplasm which comes gradually to the surface from a deep site. As Shurly puts it (Shurly p. 258), the gumma remains for a long time quiescent and finally breaks down from center to periphery.

In syphilis, the history and special treatment are legitimate aids to diagnosis. Differentiation from tubercular laryngitis is more simple. In this disease, the larynx is not the primary point of invasion. The arytenoids and the inter-arytenoid space so commonly the selected site of attack in tuberculosis of the larynx is rarely involved in the early history of cancer. Sputum examination also furnishes a positive proof of tuberculosis. The possibility of a coincidence of cancer with syphilis or tuberculosis should not be forgotten.

Local applications of drugs and internal medication may lessen the severity of pain and cough, but their utility is limited.

To the surgeon must be accorded the credit of protecting the patient from the horror of death

from suffocation, and occasionally in selected cases it has been possible to apparently remove the disease, although that necessitates always extensive maiming of the patient.

As soon as the dyspnea becomes severe a low tracheotomy should be performed. This may be suddenly required, for when the glottic chink is much narrowed by the growth, the respiratory air current rushing in and out with great velocity, constitutes a dangerous irritant and without premonitory warning a fatal edema may develop. An early tracheotomy, performed low in the neck to gain distance from the cancer, should be strongly advised. In the cases I have seen this has been followed by an improvement in the larynx, due (Browne, p. 697) to the relief from constant friction.

Faurel states that the average duration of life of seven patients having epitheliomata, on whom tracheotomy had been performed, was four years, whereas six other cases who were not submitted to the operation lived on an average only 21 months.

Intrinsic cancer of the larynx is generally regarded as a primary growth, although it may be the source of secondary and extra-laryngeal cancer. The logical inference is that cancer of the interior of the larynx, having defined limits offers a fair field for operation with a reasonable expectation that radical excision will eradicate the cancer.

Nothing less than thorough removal should be considered by the surgeon. Partial amputation from the exterior and endo-laryngeal work give a very temporary relief and invariably result in the stimulation of the remaining cancer-tissue to a more rapid and extensive growth. If the neoplasm has extended to the extra-laryngeal structures, no operation other than tracheotomy is justifiable.

The value of the X-ray in the treatment of malignant tumors is worthy of the most careful consideration especially because it may be employed to the benefit of patients who refuse to consider surgical relief or in those cases in which the disease has passed beyond the limits of an operation.

A GROWTH INVOLVING THE LEFT TONSIL, ANGLE OF THE JAW AND PHARYNGEAL PILLARS;
PROBABLY CARCINOMA.

DR. W. S. SHATTUCK: This man, thirty-one years of age, has been under my observation but three weeks. He first noticed this growth

as a small hard nodule in the region of the left tonsil about one year ago and from that time it has slowly and gradually increased until it involves, as can be seen, the left tonsil and the pharyngeal pillars, extending along the lower jaw for about $\frac{3}{4}$ of an inch and into the cheek. He denies any history of syphilis. He has been treated by several physicians including some well-known nose and throat specialists. By the latter he was given considerable medicine internally with the probable idea that the growth might be specific. Dr. Alderton saw him with me in the first week of my care of him, and advised putting him on iodide of potash internally, with unctions of mercurial ointment. This was done only with the idea of eliminating syphilis. As yet there has been no change and with the entire history showing a steady increase in this growth, my supposition is that it is carcinoma.

A CASE OF TUBERCULOSIS OF THE CERVICAL GLANDS,
FOLLOWED BY SUPPURATION, WITH DISCHARGE
INTERNALLY THROUGH THE PHARYNX,
AND EXTERNALLY BY AN ARTIFICIAL
OPENING.

DR. C. E. SCOFIELD: The patient is a man, thirty-seven years old. His family history is good. His personal history is negative.

I saw him first about seven weeks ago. At that time he had a large swelling in the right cervical region, extending well around to the front of the neck, and as far down as the episternal notch. This "pitted" on pressure and seemed to be equally "boggy" over the entire surface. The general appearance was that of a phlegmon.

The tongue was so badly swollen that it was impossible to make any examination of the pharynx or larynx.

The patient complained of great bodily weakness, difficulty in breathing, swallowing and talking; his voice in fact was reduced to a mere whisper. The pulse was 110, temperature 103.5 and respiration 30 per minute.

His breath had a foul odor, and a cough with purulent expectoration, sometimes streaked with blood, added to this suffering. I immediately sent him to a hospital, where his trouble was diagnosed as a Ludwig's Angina.

An incision about an inch and a half long, midway between the ramus of the jaw and the clavicle, parallel to the sterno-cleido-mastoid mus-

cle, was followed by a free flow of pus, with subsequent improvement of both subjective and objective symptoms.

The wound was washed daily with peroxide, and, after two weeks, the patient left the hospital. For the next three weeks, his wound was washed out every other day, the amount of pus gradually lessening, while the pulse and temperature became nearly normal, and a marked gain in weight was noticed. The cough, difficulty in swallowing, and husky voice still persisted. As far as I can learn, no examination was made of his pharynx or larynx.

I saw the patient about a week ago for the first time since sending him to the hospital. His condition was as I have just described.

On examining his pharynx and larynx, I found a tumor springing from the right side of the pharynx, which had pushed the epiglottis backward and to the left, partly closing the opening into the larynx. It was nearly the size of a half-dollar at its free surface, the base being about as large as a quarter. The free surface was rough and granular, and bled easily when touched with a probe. The rest of the growth was of pinkish color, and felt hard to the touch. The right arytenoid was inflamed, and also a small part of the pharynx about the growth.

Repeated applications of cocaine, suprarenal extract, and other astringents failed to make any change either in its size or color.

The patient said that when peroxide was injected into the external sinus, a few drops went through into his pharynx which he coughed up. I was unable to get this result after repeated attempts, neither could I go from the outside to the inside with probe or small soft catheter. There is no apparent opening from the inside that I can find.

As yet I have not obtained a piece for microscopical examination. Smears from the external sinus show sterile pus.

Frequent washings with peroxide, full strength, followed by injections of 15 grs. iodoform, to an ounce of glycerine, are causing the discharge from the external sinus to rapidly diminish. This treatment up to date has had no apparent effect on the pharyngeal growth. It seems reasonable to suppose that the trouble was originally a tuberculous affection of the cervical glands which had suppurated and discharged by the pharyngeal route; that this opening became plugged up with a constantly enlarging mass of unhealthy granulations, which caused the conditions mentioned above.

LUPUS OF LARYNX.

DR. L. H. MILLER: Miss L. H. S., aged sixty-seven, came to me for treatment at the Polhemus Memorial Clinic in June, 1902. She complained of dysphagia and more or less pain, locating it in the neighborhood of the larynx. She had been treated by two other throat specialists, one of whom had removed a small piece from her throat and sent it to a third throat specialist, who is an eminent pathologist, and he had pronounced it lupus. There was no history or indications of syphilis, yet one of the physicians had given her potash iodide to about 60 grains per day with no beneficial result.

By laryngoscopic examination I found that two-thirds of the epiglottis was gone, leaving a ragged, indurated and inflamed edge, with a markedly ulcerated surface just below the inner side, yet no other part of the larynx was involved and there was no hoarseness.

Having seen such beneficial results from the use of Roentgen's rays on lupus of the skin and having noted the unsatisfactory results from both the local and constitutional treatment this patient had received, I decided to depend on the X-ray for treatment here. Aside from a few interruptions on account of the apparatus being out of order she has had three treatments per week. And now, as you will note, the thickened, rough edges have thinned down, and are comparatively smooth, most of the induration gone and I do not think there has been much, if any, destruction of tissue since we began this treatment.

Now the X-rays have not been available for about two weeks and she is again complaining of more pain and difficulty in swallowing.

If a tube could be made of such a size and shape as to apply the rays directly to the affected surface from the pharynx, it would seem that a cure might easily be effected in a case like this.

Discussion.

DR. J. M. WINFIELD: I believe that an epitheliomata of the external ear should be treated by the X-ray. A case I recently saw was operated upon, curetted and acid nitrate of mercury employed with no result. The auricle ulcerated off and the cervical glands enlarged. The first application of the X-ray removed all the pain. Three or four applications removed all the ulceration.

I have seen sarcomata of the nose. I believe

the X-ray here, and in sarcomata generally, does not cure, but it relieves the pain.

Epitheliomata of the face are cured in 90 per cent. of the cases by the X-ray and it leaves an almost imperceptible scar. In lupus and papillomata of the same region I have used the X-ray with benefit. In the throat a special Crooke's tube should be used similarly to cases of the uterus.

DR. S. SHERWELL: I have seen several sarcomata of the nose, but not one in which an operation was happily done, including those done through the superior maxillary. I believe operation usually expedites death and makes it more painful. In pedunculated tumors the case may be different.

In generalized sarcomata, especially in sarcomata of the skin, success has many times attended the use of arsenic. The tumors may be removed and the internal administration of arsenic is then begun and increased to from 30 to 60 minims three times a day. Under this they disappear. I should use arsenic in sarcomata of the nose.

In epitheliomata of the larynx I do a low tracheotomy. All have died ultimately. Total exsection of the larynx is the only possible cure. Arsenic does not act so well in epitheliomata. I use in epitheliomata of the nose caustic acid nitrate of mercury, then the administration of large increasing doses of arsenic. Several so treated have not recurred after four or five years.

Of epitheliomata of the auricle I have seen a large number of cases. We may resort to caustics or the knife and here also we may use arsenic internally, to advantage. I am aware that this is not a popular remedy but I believe that it has an inhibitory effect after operations for their removal.

I have also seen lupus of the same region. I curette them, use acid nitrate of mercury locally, perhaps rebuilding the patient with arsenic internally and frequently they do not recur.

I have never seen sarcomata of the auricle, and regard them as extremely rare.

DR. COX: Some years ago I had a case of sarcoma of the nose. There was an extremely foul discharge from the nose and some pain, but the symptom of which the patient complained the most was the complete obstruction to the passage of air through the nose. For this symptom she insisted on having something done, so that rather unwillingly I was driven to operate. I cleared out the nose by means of cutting forceps and the snare. The growth extended to the nasopharynx and the hemorrhage was profuse. The

cavity was packed with iodoform gauze. A short time subsequently she developed a sharp attack of erysipelas and later a metastatic embolism of the calf of the leg. But for one year after the attack of erysipelas the growth ceased to develop. At the end of this time it again rapidly extended until her death, but the obstruction to breathing never afterward recurred.

BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, NOVEMBER 6, 1902.

The President, W. M. FRIEND, M.D., in the Chair.

FRACTURE OF THE PATELLA: RESULT AFTER SUTURE OF CAPSULE.

DR. J. R. KEVIN presented a case of fracture of the patella with the following history: While boarding a car, his right foot being on the lower step of the car, and his hands grasping the handles, the car suddenly started and in his endeavor to jump off the car, he struck the patella against the step, fracturing it, and discovered the uselessness of the leg immediately after. He came into the speaker's service at St. Mary's Hospital. Local applications were applied for eight or nine days, and on the 10th of September, by making the arched incision, the blood clots and fibrinous material were removed and the capsule sutured. The convalescence was uninterrupted. A plaster cast was applied from the ankle to the hip and he was placed in bed. At the end of nine days a fenestrum was cut in the cast, the external sutures were removed, and to-day, five weeks after the operation, he is able to walk around with comfort.

SUTURE OF FRACTURED PATELLA.

DR. A. H. BOGART presented a male patient 41 years old, brought to the County Hospital during the summer with the following history: On August 15th, 1902, while jumping from a pier to the sand below, a distance of about fifteen feet, he suddenly twisted his leg, and at the same time experienced a sharp pain in the knee, and found that he was unable to stand or walk. He was taken to the Emergency Hospital at Coney Island and transferred from there to the County Hospital. Examination showed considerable swelling and discoloration of the left knee, some diffusion of blood into the joint and all the signs of fracture of the patella. The fracture was a transverse one about the middle

of the bone, with a separation of about one inch between the fragments. An ice bag with a posterior splint were applied for a week until the swelling had subsided.

On August 29th, under ether anesthesia, the speaker exposed the fragments, and opened the joint, which was found to contain a considerable quantity of blood clot. This was removed, the joint washed out with saline solution, and the fringe of tissue which had fallen down between the fragments, removed. There was a considerable amount of tissue between the bones, quite sufficient in his opinion to have prevented firm union of any kind. This having been done, the fragments were easily put in perfect apposition and sutured with kangaroo tendon, two sutures being used. The wound was then closed with a few deep catgut sutures and a subcuticular of chromic gut. Following the operation for about a week, as indicated by the temperature chart, there was some reaction, evidently due not to infection, but simply to the traumatism inflicted upon the knee joint. At the end of that time, however, it subsided, and the patient has made an uninterrupted recovery. The cast was removed at the end of about six weeks and union found to be firm. He was then encouraged to use the limb carefully, and massage and gentle manipulation were ordered. At the present time union is firm. There are apparently no adhesions, as the patella is freely movable. Flexion and extension are limited somewhat, due largely to the extreme care which the patient exercises in handling his limb. On the whole the result seems perfectly satisfactory.

Discussion.

DR. A. T. BRISTOW said, in favor of the curved incision, that it is one he invariably used for the following reasons: In the first place it avoids the use of retractors so when the skin flap is turned upward, the joint is freely exposed with the least possible traumatism. Another advantage is this: that the line of skin incision and the opening of the joint are distant from each other from $1\frac{1}{2}$ to 2 inches. If one is so unfortunate as to get an infection in the line of the skin incision, when the opening into the joint is some distance from the locality of the suppuration, the operator has an added feeling of safety.

SARCOMA OF OVARY.

DR. A. RAE said that early diagnosis and a greater readiness to accept early operation render

the occurrence of sarcoma of the ovary of considerable size comparatively rare. Occasionally, because of the refusal to accept early interference the condition comes to operation with greatly enhanced danger to the patient and vastly increased difficulty to the operator. Such was the case, in the subject of this report. Relief, or at least diagnosis, was applied for while yet the tumor was small. Timidity prevented the patient from accepting operation, until, the growth having attained extreme proportions, interference became imperative.

A maiden woman of 60 years, thin and spare, yet strong and wiry, first came under observation in January, 1901. Examination revealed a tumor, apparently an enlarged right ovary, the size of a hen's egg. By June following this had increased to the size of a baseball; and because of this rapid increase in size, its removal, which at first had been advised, was now strongly urged; but operation was not accepted. Towards the close of the year in November or December she again applied for assistance.

The tumor at this time filled the pelvis and abdomen, crowding down the uterus and adnexa, obliterating in great part the cavity of the vagina, and by pressure on the bladder interfering in a distressing manner with the functions of that organ. By the displacement of the intestines their function too was greatly modified. Reaching to the diaphragm the tumor rendered respiration imperfect. The general appearance of the patient, her gait and general carriage resembled that of a pregnant woman at term, except for the higher position of the tumor. The patient realized that she could not live long under such conditions, and accepted operation, which was done December 6, 1901.

Under ether anesthesia a median incision four inches in length was made. Palpation had led to the belief that the tumor was partly fluid and could be considerably reduced in size by aspiration. The attempt speedily proved the error, and with the lengthening of the incision to nine inches, the adhesions universally present in the upper and anterior surfaces of the tumor were attacked and separated, cut, or tied and cut as necessity demanded. The separation and subsequent care of the adherent large and small intestine required time and care. The transverse colon for six inches of its length and fully half its circumference was firmly bound to the superior and anterior aspect of the growth. A coil of small intestine was quite as extensively adherent. Both were separated without injury to either, and

the tumor delivered. A pedicle three inches broad and one-quarter inch in thickness was ligated in sections by interlocking sutures of chromicized catgut and the growth released. The disposition of the uncovered surfaces of the large and small intestine presented a problem, which was solved by applying the denuded surface of each to adjacent intact large and small intestine respectively and suturing it in position. This formed a loop of some size in the transverse colon, and joined the sides of two loops of small intestine. Abdomen closed.

The operation occupied an hour and a quarter. The patient rallied fairly well. In three weeks the patient was up. During the time since the operation she has experienced little discomfort, the bowels have continued to act without assistance; and at the present time the patient is enjoying a good degree of health. There is no indication of other developments of sarcoma.

The tumor on examination proved to be an angio-sarcoma.

RECURRENT APPENDICITIS.

DR. A. E. RAE reported the case of a man who had been in his hands for some months, and had suffered during that time with three or four attacks of appendicitis. However, after two or three days illness the symptoms cleared up so completely that interference was refused.

Two weeks elapsed between the last attack and the previous one. When the acuteness of the symptoms was subsiding operation was performed, and two ounces of pus evacuated. No appendix or remnants of an appendix was found, and the usual dressings, with packing, etc., were applied. Forty-eight hours later the packing was removed. It was so dry and clean it was not replaced. After 36 hours a small drain, which had been introduced was removed. That was again replaced by a small strip of gauze after 48 hours. Two days later under nitrous oxide anesthesia, the abdominal wound was closed and since that he has made a complete recovery.

The advisability of closing a wound of that kind so soon after operation was a mooted question, and yet the parts seemed to be so thoroughly clear from objectionable material, that it seemed a safe thing to do, and as the case proved it was fortunate.

TUBERCULAR APPENDICITIS.

DR. B. B. MOSHER reported two cases of tubercular appendicitis.

The first case, S. S., 24 years old, a shoe sales-

man, had been under his care for three years suffering from chronic appendicitis. Early in the morning of June 4, 1896, the speaker was called to see this patient in an acute attack; pulse 100, temperature $99\frac{4}{5}$, vomiting, severe pain in the right iliac region; and the patient looked very ill indeed, a picture of appendicitis. Appendectomy was performed during the same forenoon, which revealed a very long, large, and tensely distended appendix hanging about half its length over the brim of the pelvis. There was nothing unusual about the operation, patient running a very favorable after-course until the fourth day, when he developed a temperature of 103, irritating cough; and 34 hours later a rash appeared on the face and chest of a typical measly appearance. This intercurrent attack of measles ran the usual course, followed by desquamation. Patient was up and about in four weeks. The stitches were removed on the tenth day and primary union was present.

The contents of the appendix were subjected to microscopical examination, and to the speaker's surprise a number of tubercle bacilli were shown. At the time of the operation the patient was in good health, lungs normal, but three years later, *i.e.*, 1899, he developed pulmonary tuberculosis, from which he died at the end of two years.

The second case differs from the first in so far as appendicitis was a concomitant and not a preceding condition. This patient developed an acute attack of appendicitis on April 12, this year; temperature was 104; pulse 120; no vomiting; considerable shock; tenderness; and abdomen tensely distended. The patient had had an attack of pneumonia ten years previously, from which he recovered very slowly, but had been in a fair state of health until this time. It was decided to proceed with the operation, which was done shortly after noon on the same day, six hours after seeing him. On opening the abdomen there was sero-pus evident in the peritoneal cavity. The peritoneum and other tissues in the inter-abdominal field of operation were studded extensively with the tubercles of miliary tuberculosis; one tubercle on the side of the appendix had evidently broken down, causing a perforation of the appendix near its distal end. The patient recovered from the operation slowly, but after five weeks was sent away for change of climate, temperature still above normal. Three months later he died from general miliary tuberculosis.

Discussion.

DR. W. C. WOOD said that this subject brings up the more interesting one of Tuberculosis of the Abdominal Cavity, where we see the appendix as a part, but not the entire lesion. He had two of these cases under his care at present, and they offer problems which, to his mind, are not easy to solve. In these two cases the appendicitis has not been of the acute variety, but rather of the sub-acute or chronic type. The symptoms for which operations have been done have not always been those directly referable to the appendix, but those of intestinal obstruction due to adhesions. In all these cases we note the large mesenteric glands. A few cases have been reported where extensive dissection of these mesenteric glands have been made. He had never had the courage to attempt this practice, for fear of interfering with the circulation of the intestine by damage to the mesentery, and for fear also of more acute infection of the abdominal cavity.

This last week he had operated on a boy of seven, with symptoms of moderate intestinal obstruction, history of three previous attacks, present attack being not complete, but the vomiting, the general appearance, and the distention of the abdomen fairly well marked, and slight temperature indicated operative interference. He found here the typical lesions of tubercular peritonitis, perhaps more advanced than usual. He found miliary tubercles upon the intestines and upon the appendix. He found serum in the abdominal cavity, reddish in character, similar to the type of tubercular peritonitis following this condition. The omentum was bound down to the mesentery, causing by this binding the enteric symptoms of intestinal obstruction. The omentum at the point where it was bound down had become cheesy and degenerated, showing a marked example of the third type of tubercular peritonitis. In this case he removed the offending band of omentum, and removed an appendix chronically inflamed and partly diseased, leaving the mesenteric glands. Wiping out the cavity and closing the wound without drainage was the procedure that was followed.

He had a similar case two weeks ago, where the appendix was the chief symptom, and the diagnosis of tubercular peritonitis was not made until the abdomen was opened, the glands, however, being present.

THE BROOKLYN PATHOLOGICAL SOCIETY.

435th Regular Meeting, November 13, 1902.

The President, ARCHIBALD MURRAY, M.D., in the Chair.

RECURRENT ECTOPIC PREGNANCY—SPECIMEN.

DR. J. P. MURPHY: The history of the case is as follows: Patient seen June 6, 1901, twenty-seven years old, married four months, menstruation began at fourteen, regular, normal. She last menstruated May 4, 1901. She was healthy up to May 22d, and did not think that she was pregnant. She was suddenly taken with a sharp pain in the left ovarian region and was confined to bed. When I saw her the abdomen was tender and tympanitic and the pulse rapid. I did not make a diagnosis of tubal gestation at the time, but under the anesthetic a tumor in the left ovarian region was found well marked. This was operated on and a ruptured tubal gestation found. The patient made a good recovery and left the hospital on June 27, 1901.

I was again called to see the patient July 3, 1902. She gave a history of seven weeks previously beginning to have pain in the back, headache and vomiting at night. About three weeks before my seeing her, she was seized with a sharp lancinating pain in the right side, radiating to the back. She was treated medically, and in a few days was able to be about. Four days before admission to the hospital the pain returned. At that time the abdomen was distended; she had pain in the right ovarian region, and more particularly in the appendicular region. By vagina, under the anesthetic, a swelling was found in the right fornix. The pulse was 116; temperature 102.

The possible diagnosis of some trouble connected with the tube and ovary was made, but the condition of disease of the appendix was not excluded at the time. While under the anesthetic she was examined by Drs. MacEvitt and Sullivan. The abdomen was opened and considerable clotted and fluid blood was found in the peritoneal cavity. The tube and ovary were removed. After looking at the specimen which was removed no point of hemorrhage was found; in other words, the tube did not appear to be ruptured. We concluded that it was a case of recurrent ectopic gestation. The specimen which you see here has been preserved in formaldehyde, and there is a bare possibility that there might be a mistake in the diagnosis. The patient left the

hospital cured at the end of about four weeks. I saw her about a month ago, and found the uterus much retroverted. In this connection I may say it might have been a good scheme to take out the entire uterus. Oastler has published a report of cases where both tubes and ovaries were removed at Roosevelt Hospital, and in every case retroversion was a sequel of the operation.

DR. J. C. MACEVITT: This is a most interesting specimen, if it should prove to be an ectopic, because I know of no American gynecologist or surgeon who has reported a like case. Olshausen, of Berlin, has reported a case almost similar in character, in which there was no doubt as to the existence of an ectopic gestation on both sides. Taylor, of England, and Chartor of Berlin, have also reported a case each. I think these are the only three cases reported of recurrent ectopic gestation.

Now, it is a question in my mind whether this is a case of ectopic gestation. Dr. Murphy, just before the operation, while the patient was under the anesthetic, asked me if I would make an examination. Up to that time there was a doubt as to whether the woman was pregnant, or whether it was an ectopic gestation or appendicitis. While thoroughly anesthetized I examined her, and I found the uterus enlarged. It was anteflexed and firm, the os hard and not patulous. These conditions would indicate a non-pregnant state, let it be normal or abnormal. I was able by bimanual manipulations to feel this movable mass on the side and exclude appendicitis and normal pregnancy, and made a diagnosis of an enlarged pus tube, soft in consistency. Dr. Murphy then opened the abdomen, and free blood clots were found. The tube and ovary, as you see, were removed. Upon its removal I carefully examined the tube, and as you find (it is now hardened due to formaldehyde), it was absolutely smooth with no signs of any rupture, and it is still undetermined whether it is an ectopic gestation or hemato-salpinx. If a hemato-salpinx, it is a very remarkable case; if an ectopic gestation, it is a question where the free blood in the abdominal cavity came from, but that can be explained by the fact of its being a tubal abortion, where there is a sub-placental effusion with the tube thrown off through the abdominal opening, the ovum and possibly the placenta. The diagnosis can be cleared up by opening the tube and submitting the contents to microscopical examination.

DR. W. E. BUTLER: If I remember rightly, I reported a similar case to this Society last spring.

The history of that patient was this: About six years previously she had suffered from an attack of sudden pain and dyspnea and the principal symptoms of ectopic pregnancy, and had been operated on by Dr. McClennan; the abdomen was filled half full of blood, and the tube and ovary had been removed. He called me in consultation to see her last spring and the same symptoms presented. She was a few days over her period, and this time had commenced to flow a little more than usual and suffered very sudden acute pain. The abdomen was fairly tense, and on operating I found the abdominal cavity about half full of blood, it being a case of tubal abortion. The tube was large at the end, but contained what was evidently the remains of the placenta.

I think there are a number of cases reported. Reed speaks of a number in his book.

Amaurotic Family Idiocy.

DR. B. ONUF: The disease which I wish to bring to your attention was, so far as its ophthalmological features are concerned, first described by Warren Jay in 1881. Many cases were later reported by other ophthalmologists, but usually only the ophthalmological aspect of the cases was dwelt upon. The merit of having brought out the entire clinical ensemble of the disease belongs mostly to Dr. Sachs who also published the first autopsy findings of the malady.

What induces me to bring the subject before the Society is that I had the good fortune to see the microscopical sections which were made for Dr. Sachs from one of these cases and which gave such interesting findings that, with Dr. Sachs' kind permission I have thought it proper to bring them to your attention.

Before I proceed, let me mention that this particular case has already been reported by Dr. Sachs at the last meeting of the American Neurological Association, June last.

The disease, which Dr. Sachs has named Amaurotic Family Idiocy has, in brief, the following clinical characteristics: It often affects several members of a family (whence the name), although it may also occur periodically. It seems to affect chiefly Jewish families, and indeed, all the cases collected by Dr. Sachs were of such descent. Other points of family history brought out in some cases were blood relationship of the parents or grave mental disease in the families of the parents or traumatism during pregnancy.

The development of the disease, according to Dr. Sachs' description proceeds as follows:

The children are apparently normal at birth, but in the course of two or four or even eight months the parents notice that they are apathetic, that the eyes are rolled back and forth, that they can neither sit up nor hold their heads straight, and that they perform very few movements spontaneously. Only in the course of months do the parents begin to suspect impairment of sight, which becomes confirmed by examination, and which ultimately leads to almost complete blindness. On examination of the fundus one observes (I am giving here the description made by Warren Tay) in both eyes, in the region of the macula, a distinct, somewhat diffuse patch, more or less circular, in the center of which one sees a brownish-red point or, as it is called by many observers, a cherry-red spot. The picture resembles closely that produced by embolism of the central artery of the retina. As the disease progresses the weakness of the extremities gradually increases; a more or less complete diplegia develops, which is frequently of the spastic kind, but may also be flaccid. The reflexes are either exaggerated, normal, or even diminished. The mental development is practically at a standstill; in fact, at the end of the first year of life the children are usually completely blind and idiotic. Gradually a state of marasmus develops, to which they usually succumb before the end of their second year of life.

Of the great changes found at the autopsy I mention here first, that according to Sachs, in one case the configuration of the fissures was unusual, that is, of a kind found in lower grade brains. In the case which Dr. Sachs reported at the last meeting of the American Neurological Association and of which I shall here make demonstrations, the most striking feature was a marked shrivelling of the primary optic center, at least of the external geniculate body and of the pulvinar thalami.

But the most interesting feature was the histological alterations found throughout the entire central nervous system. The nerve cells are principally affected, or at least these show the most striking changes. The fibre tracts are also involved, *i.e.*, degenerated, in many places, but evidently secondarily to the cell changes.

Naturally, in view of the progressive mental deterioration marked changes ought to be looked for in the cerebral cortex and they are indeed present, as I shall later show.

I have, unfortunately, not secured a good specimen of the cortex, and, therefore, cannot show you any chart of it. I have, however, some

specimens of the spinal cord. These changes are so regular and so characteristic that it is proper to study the disease from the changes found there.

I show you here a picture of the anterior horn of the spinal cord. This is the normal anterior horn of the spinal cord, and this is the anterior horn of this case of amaurotic family disease. I have made two diagrams only to show you just from whence this picture is taken. You have here a transverse section through the spinal cord. You see here the white matter and here the gray matter. You see in the gray matter, the posterior horn here, and the anterior horn here, and I wish to add that these pictures are not simple diagrams; they have been drawn from specimens with the Abbe, and have then been enlarged with the pantograph, so that you find here exact proportions.

If one compares these two pictures, one is at once struck by several facts. He sees that the normal cells appear much smaller than those of the amaurotic family. All these cells are swollen up like vesicles. Their processes probably have not disappeared, but they cannot be seen here. One sees distinct processes here and everywhere, and here the cells appear like vesicles. Then one sees further that here the whole cell-body is stained (it is the methylene blue stain—the Nissl stain), while here one sees only the nucleus, and an area around the cell nucleus is stained and the rest is entirely white—entirely unstained. It hence appears as if the number of cells was increased in the case of amaurotic family idiocy, but this is only apparent. The cells being all swollen, one cell appears in many sections, so that one section will show an apparently great number of cells, yet the absolute number of cells is not increased—on the contrary it is probably diminished.

I have here drawn also with the Abbe and pantograph a picture of a single nerve cell. This is to show the final changes that are present. Here is a normal nerve cell of the anterior horn of the spinal cord, and here is the nerve cell of the anterior horn in cases of amaurotic family disease. I call your attention to this vesicle-like swelling of the cell body and the apparent disappearance of the processes. One apparently sees a normal cell with the so-called Nissl stain. Part of the cell body is stained and the other part unstained; the cell appears in the shape of peculiar bodies of all sorts of shapes, which have usually a concentric arrangement, and the processes have a longitudinal hexagonal arrangement.

In this case of amaurotic family disease these blue bodies, which are called the Nissl bodies, in the periphery, have disappeared, and those that were upon the nucleus are still present, but they are disintegrated, *i.e.*, they have become granular, and all these stained granules are concentrated around the nucleus. This change is found everywhere.

Another characteristic of these pathological cells is their changed reaction to the Vigot stain. The Vigot stain is really a fibre stain, but incidentally it also stains cells, the normal Vigot stain of a cell being orange or brownish, the nucleus slightly darker and the nucleolus quite dark. Now, in the case of amaurotic family disease, that part which appeared colorless with the Nissl stain appears of a steel gray, and only that part around the nucleus that was found stained in the other specimens retains the orange color. This change is found throughout the entire nervous system—in the anterior and posterior horns, in the spinal ganglia, in the motor nuclei of the motor cranial nerves, the sensory cranial nerves, the cortex of the cerebellum and the basal ganglia in the cortex. There is no part of the nervous system that is free from it and the changes are so marked that one seldom meets a normal cell. In some parts, *e.g.*, the retina, the cells seem to atrophy and disappear, and there are cases in which but very few cells can be seen directly.

Changes in the white substance are not so marked. There was in these cases some degeneration of the lateral and pyramidal tracts. They were not marked and are evidently secondary to the other changes.

We still know very little of the etiology of the disease. There are some things that can be excluded. Some authors say that there might be a relative disease—syphilis, either hereditary or acquired—but it has been absolutely excluded in all these cases, and in those cases which have come to autopsy, absolutely no syphilitic changes could be found, so that the etiology is obscure.

SPECIMEN: LARGE FIBROID UTERUS WITH DOUBLE HYDROSALPINX.

DR. W. E. BUTLER: This specimen is of interest for several reasons. The patient was forty-three years of age, had been married twice, had no children by either husband. She had complained of no symptoms at all until about three months before consulting me. On examination

I found that the cervix was high up under the symphysis and there was a large mass in the cul-de-sac. On either side one could feel these tumors, which I will speak of later. The diagnosis of fibroid of the uterus was made and operation advised. She went to the hospital and was operated upon; and one of the points of interest consisted in making the abdominal incision, as one should in cases where a large fibroid is found, rather high up. Cutting down, I found I was getting into some foreign substance. The bladder had been thrown up $3\frac{1}{2}$ to 4 inches above the pubis, so that the incision in the ordinary locality would have gone into the bladder. On passing the hand well down I found in the cul-de-sac the fundus of the uterus, and the cervix could be felt through the anterior wall, pointing directly upward; in other words there was a complete retroversion of the uterus. The uterus had grown in this retroverted position and could not get out of the pelvis and had pushed the cervix and bladder upwards.

On the right side there was a large mass, which looked like a portion of strangulated intestine, dark and full of fluid. That was brought up and proved to be one of the tubes, and on the other side the same condition was present. The tube, you will notice on inspection, is normal apparently for about $2\frac{1}{2}$ or 3 inches of its length, and is then twisted, and the portion beyond is full of fluid—it is practically a torsion of the tube, making a mass as big as a large sausage. The other side was in the same condition, making a very interesting specimen of a torsion of the tube with a collection of fluid and blood in the end. One of the ovaries contained, besides some cysts, a little hematoma. She also had an inguinal hernia, which I closed up at the same time. The further history was of great interest to me. She developed twenty-four hours after the operation a pneumonia, the temperature running up to 105, pulse 140 and intermitting every second or third beat, respirations going up to about 40 or 45. The temperature remained fairly high for three or four days, then came down somewhat under guaiacol carbonate and then suddenly rose again. The abdominal wound broke down completely. She was rather stout and the breaking down was due to a fat necrosis. About the fourth day a large amount of fatty tissue and a purulent discharge took place from the abdominal wound, the patient seeming somewhat relieved thereby. The temperature, however, went up again, and the patient died one week following operation. The

autopsy showed the presence of pus in the abdominal cavity. There was no evidence at all of peritonitis around the stump or around the suture line of the peritoneum on the floor of the pelvis and none around the stump of the appendix. I removed the appendix simply at the lower portion of the abdominal wound, and I reasoned from that and still think, that the high temperature of the pneumonia caused the sloughing of the abdominal wound, allowing some leakage into the peritoneal cavity. No inflammatory exudate was present around the site of operation.

I attribute the pneumonia to the prolonged anesthesia.

THE BROOKLYN GYNECOLOGICAL SOCIETY.

Stated Meeting, November, 7, 1902.

FREDERICK J. SHOOP, M.D., Editor.

The President, FRANK BALDWIN, M. D., in the chair.

REPORTS OF CASES: *Ruptured Tubal Pregnancy*

DR. W. B. CHASE: This specimen is an ovisac and portion of tube from a case of tubal pregnancy. The woman had one miscarriage. She was about 30 years of age. The rupture took place two weeks ago. There was evidence of bleeding in the abdominal cavity before that time. The prostration was very pronounced and it was thought by her attendant that the woman would die at the time of the rupture, but she rallied and was brought to the hospital. The abdomen was opened, was found full of blood, and the bleeding points were secured. The bleeding came entirely from the ovarian artery, and it was one of the most furious hemorrhages I ever saw; I would hardly have believed the ovarian artery could have furnished such an amount of blood. Full stimulation by rectal enemata and intracellular injections was made with free heart stimulation after the operation. At one time respiration ceased, the pulse was lost and I hardly thought we would succeed in rallying the patient.

I am more and more impressed in these cases, that it is very difficult to estimate the exact degree of danger in a given case from hemorrhage. If the rupture takes place in the proximal portion of the tube and the blood escapes into the broad ligament, there is perhaps some limitation by pressure, which may aid not only in the arrest

of the hemorrhage, but also in arriving at a satisfactory diagnosis. If it takes place in the distal portion and the blood escapes into the peritoneal cavity, I know of no way of judging, unless there is a positive distention of the abdomen, of the amount of blood in the peritoneal cavity.

Regarding the question of the serious complications which arise from hemorrhage and shock, I am more and more impressed with the belief, that unless we find a mass in the broad ligament and the patient is under favorable conditions, it is a matter of pretty serious risk to delay operation. We know patients do recover without operation with free blood in the peritoneal cavity, but in view of the risk of excessive hemorrhage, and the difficulty which nature has in taking care of a very large amount of blood in the peritoneal cavity, I think it desirable to operate before there is evidence of extensive loss of blood.

There was one complication in the case. Beginning with the day after the operation, she had a gradual rising temperature for four days until her temperature reached $104\frac{1}{2}$. There was no chill, no perspiration and the blood examination failed to discover any plasmodia, so it was not malaria. I was satisfied it was not septic, for the reason there was no chill. It was a gradual progressive rise of temperature, and examination of the urine revealed an abnormally large amount of indican in the urine. It simply confirmed what was my belief, that the trouble was due to ptomaine absorption from the alimentary tract. There had been no opportunity to open the bowels, as is desirable in laparotomies, and she was put on laxative medicines. On the second trial I used acetozone, the new antiseptic and germicide, and other intestinal antiseptics, notably carbonate of guaiacol, and as soon as the bowel was opened and the system brought under the influence of these remedies, the temperature declined.

I hope Dr. Jewett will give us his view of the differentiation of nervous shock, and depression due to loss of blood.

DR. CHARLES JEWETT: A paper read by Dr. MacEvitt before this society brought out the very pertinent point that the use of cardiac stimulants in these cases before operation adds to the danger. Too early use of hypodermoclysis is also questionable. Both these measures tend to increase the blood loss. Their use should be begun, therefore, only just before the time when the vessels can be ligated.

The distinction between collapse from hemorrhage and shock is a very different matter. We

very seldom have shock without hemorrhage, but we do sometimes have it. A steadily climbing pulse with low temperature, growing pallor, irregular respiration and dyspnea is very significant of hemorrhage.

The evidence of hemorrhage is to be looked for in the symptoms or effects of blood loss. The amount of blood in the peritoneal cavity is indicated as much by the general symptoms as by anything.

Recently the English authorities seem to be of the opinion that ectopic gestations require operation much less frequently than is the practice in this country. A recent paper by Cullingworth takes this ground and English opinion generally indorses it.

DR. F. J. SHOOP: Salt solutions were not used until after the vessels were secured in this case. According to the report of her attendant who called Dr. Chase in consultation, the patient was in such a state of collapse when he found her that if heart stimulation had not been resorted to she would not have lived to reach the hospital.

When she arrived she was in such a fair condition that it was almost a question whether to operate at once. However, the wisdom of immediate operation was demonstrated on the operating table.

DR. FRANK BALDWIN: I always recall a case I had some years ago with a feeling of pain. I had for some time been watching a woman with probable ectopic, and left word at the house to be called if any symptoms arose. One afternoon I was away from the office for three hours, and found a call had been sent in in my absence. I went to the house and found her dying from hemorrhage into the abdomen, due to rupture of one of the tubes. Undoubtedly, if I had seen her earlier something might have been done. It simply goes to prove that procrastination will not do in all these cases.

PALMER'S VOLSSELLUM FORCEPS.

DR. C. R. HYDE presented a pair of Dr. Palmer's volsellum forceps designed for the purpose of grappling large fibroid tumors in the process of removal.

Advantages:—Large grappling surface, short shank, well separated teeth which will not tear out when traction is used, the form of the lock, and its solidity as a whole.

Discussion.

DR. J. C. MACEVITT: I think the principle is a good one, the separation of the teeth, curvature,

flatness, the lock, and shortness of the shank, with the solidity of the instrument, appeal to me very much.

In cases of large tumors I generally use a corkscrew probably three-fourths of an inch in diameter. It answers the purpose very well, and I am rather inclined to think would hold equally as well as this instrument. Where the tissues are friable these teeth, I should judge, would pull through. With a corkscrew you can go down 3 or 4 inches and meet hardened fibrous tissue. The only fault I can see is the limitation of the depth of the purchase.

DR. CHARLES JEWETT: Dr. Palmer's instrument strikes me as the best of the kind that has been offered. But the neatest hysterectomies for fibroids I think are done without any traction forceps at all. In large fibroids it is quite unnecessary unless they are impacted. Frequently a hemorrhage occurs from the puncture of the forceps, even if they do not tear out. When it is possible to work without traction forceps usually the operation may be made almost absolutely bloodless.

SECTION ON PEDIATRICS.

MEETING OF DECEMBER 12, 1902.

DR. C. LE GRAND KERR, Editor.

REPORT OF CASE.

DR. W. A. NORTHRIDGE: I have here a portion of a rib five centimeters long which I removed from a child, 27 months old, two weeks ago. The child, a female, entered the Babies' Hospital with an old sinus in the right mid-axillary line, which had persisted for two years and which discharged pus freely. This sinus followed a resection of the seventh rib, done for an empyema, by an eminent surgeon of this city, since deceased. Probing of the sinus discovered carious bone. The child was anesthized by Dr. Nielsen and the usual incision for a resection was made. A portion of the carious bone was snipped off with the bone forceps. Probing discovered still more. The bone was then seized with a forceps when this piece came away. You see from its shape that it has been torn from the rib at the time of the operation, probably by a sudden downward pressure of the hand upon the bone-cutting forceps. All the ribs are now intact. The sinus is about closed and the discharge has ceased. This case illustrates a rare accident following this operation.

PARASITIC INTESTINAL OBSTRUCTION, BY JOHN C. E. NIELSEN, M.D.

Owing to the long series of symptoms, which this condition involves, we are liable to diagnose the condition as anemia; phthisis; indigestion; malaria; neurasthenia—in fact any disease which has as its main index point malnutrition.

Diagnosis by exclusion may be necessary. When the expelled parasite has been *seen*, and *not* before, can one be certain of his diagnosis; but by taking cognizance, collectively, of the following cardinal symptoms, we are, I believe, not so liable to fall into error:

1. Nasal and anal pruritis.
2. Restlessness and gritting of teeth at night.
3. Marked emaciation notwithstanding a ravenous appetite.
4. Colicky pains in the intestines.

May B., aged four years, constipated, asthenic and emaciated, notwithstanding an inordinate appetite, giving the history of having passed about three feet of worm two months previously. Suffered occasionally from nausea and eructations of gas.

TREATMENT.

Anthelmintics and regulated diet. Before breakfast, ten capsules, each containing oleoresina aspidii gr. iv and calomel gr. $\frac{1}{3}$ to be taken at five minutes interval.

In case expulsion had not taken place two hours after last capsule, gave 30 m. of sps. chloroform; to be followed by 5iv of castor oil.

Treatment produced a slight fecal movement each day until Nov. 7 when the bowels became absolutely confined. By palpation detected mass in middle of transverse colon, and one in descending colon. Diagnosis, intestinal obstruction. Subjected patient to high rectal irrigations of soap and warm water, and the classical atropine treatment. Stimulation and rectal feeding. On the 11th instant, when no sign of improvement was evident, I placed her under the influence of the A. C. E. mixture, and with steady, firm pressure manipulated every portion of the intestinal tract through the abdominal wall; the two masses indicated yielded to the force, but there was no other evident point of obstruction in the whole canal.

Three hours after this, patient vomited a mass about five inches long and three-quarters of an inch in diameter, consisting of cheesy matter and portions of the tenia solium.

Next three days the patient passed quantities of

broken-up parasites, and on the fourth day the discharge became quite fecal in nature.

She regained perfect health, and increased in weight fifteen pounds during the next two months. Five weeks ago she had had no recurrence of the parasitic condition.

SECTION ON OPHTHALMOLOGY.

Stated Meeting, April 22, 1902.

The President, JAMES W. INGALLS, M. D., in the chair. Scientific session.

Report of an Unusual Form of Ptosis, with the Result of Operation.

DR. L. A. W. ALLEMAN: The patient was a boy, 15 years of age. He had suffered from a blow on the outer angle of the orbit of the left eye, two weeks before being seen. No swelling nor discoloration existed, but the skin was prolapsed at the center of the lid. The motility of the lid was retained. The skin of the lid was detached from the subcutaneous tissue. There was no other lesion. Two operations were performed. At the first three subcutaneous sutures were inserted from the sulcus of the fold to the lower edge of the tarsal cartilage. Two weeks later an elliptical piece was excised, and the edges united by sutures. A good cosmetic result was obtained.

Hotz's case of "ptosis atonica," from weeping, was cited. The blow in this case was reported to have been at some little distance from the portion of skin which became detached, from which circumstance it was regarded as unique.

Case of Congenital Microphthalmos with Coloboma of Iris and Choroid.

DR. J. SCOTT WOOD: The patient was a boy 11 years old, of German nationality. No history of injury could be obtained. There was no history in the family of previous congenital abnormality. In the left eye there was no sight, merely light perception since birth, and it was much smaller than right.

O. D. V.— $\frac{6}{8}$ Coloboma of choroid. Iris, lens, retina and optic nerve normal.

O. D. V.—Shadows, microphthalmos. Coloboma of iris, lens and choroid; nerve normal. The case was presented to the section for examination.

Report of Hemorrhage Tubercular (?) Polypus of the Conjunctiva.

DR. H. H. WAUGH: The case was that of a plethoric woman, 42 years of age, with a nega-

tive family and personal history. She complained of bleeding from the right eye once or twice a day for a week. It had bled a few times a year previously. Hemorrhage followed eversion of the upper lid and the removal of a small polypus from the center of the tarsal cartilage, but was controlled by silver nitrate. A pathologist reported tubercular findings. The patient was not again heard from; so it was concluded that there was no subsequent trouble.

Neoplasm of Sclera.

DR. H. H. WAUGH: H. P., aged eight years. Brought to Brooklyn Eye and Ear Hospital Jan. 16, 1902. Small ulcer of cornea near upper portion of limbus. In the course of a few weeks a peculiar growth extended from the cornea into the sclera. Neoplasm is coarsely granular, almost a cauliflower appearance. Has increased in size so that now, April 22, 1902, it is about 15 mm. in diameter. The cervical glands are enlarged. The family history is negative, except that the paternal grandfather and great-grandfather both died of cancer. The case was presented.

JAMES INGALLS.

THE BROOKLYN MEDICAL SOCIETY.

SEVENTY-SEVENTH (77th) REGULAR MONTHLY MEETING, FRIDAY, NOVEMBER 21, 1902.

Because of the death of our late president, Dr. William H. Haynes, the chair was temporarily occupied by Dr. H. E. Rogers who received a motion that the Society proceed to the election of President to fill the unexpired term of Dr. Haynes. On motion duly made, seconded and carried, Dr. Algernon T. Bristow was unanimously chosen to fill the vacancy. Dr. Bristow then occupied the chair for the balance of the meeting.

Minutes of meeting held September 19, 1902 read and adopted.

Minutes of previous meeting read and adopted.

Applications for membership:

Dr. E. G. Shutz, 145 Himrod st., L. I. '98'; Dr. David Myerle, 572 Bedford ave., L. I. '82.

Admissions to membership:

Dr. W. L. Bartow, Dr. John H. Longstreet, Dr. W. S. Simmons.

CLINICAL SECTION.

Dr. E. J. Carroll—Chairman.

1. Dr. J. F. Haller: (a) Case of Severe Burn, aggravated by Trional Poisoning.

2. Dr. Alfred Bell: (a) Lipoma of Labium Majus.

3. Dr. Chas. Wuest: (a) Interesting Specimen of Arterio-sclerosis with Aneurysm of the Aorta.

Before proceeding to the regular program the matter of the Society adopting resolutions on the death of Dr. Haynes was taken up.

It being the universal opinion of the members that Dr. William H. Haynes while president of the Brooklyn Medical Society had been indefatigable and untiring in his efforts to further the interests of the Society, and that its present most successful condition is in a great degree due to the unflagging interest which he had at all times manifested in its affairs, it was regularly moved, seconded, and carried that a committee be appointed to draft resolutions of sympathy; that the same be properly engrossed and be presented to his family.

Dr. James C. Kennedy, Dr. Walter C. Wood, and Dr. John H. Droge were appointed.

PROGRAM.

"The Hemorrhages of Pregnancy: Their Diagnosis and Treatment," Dr. John O. Polak.

Discussed by Drs. W. E. Butler, Walter Chase, Richard Kevin, Chas. Hettesheimer, J. F. Haller and Brader.

A vote of thanks was tendered to Dr. Polak for his intelligent presentation of the subject.

Adjournment and social session.

HUGH EDWARD ROGERS, M.D.,
Rec. Sec.

THE BROOKLYN SOCIETY FOR NEUROLOGY.

B. ONUF, M.D., EDITOR. . . .

REGULAR MEETING, OCTOBER 30, 1902.

DR. R. C. F. COMBES, the President, in the chair.

DR. BRUSH read a paper on "The Etiology of Locomotor Ataxy" which was discussed by Drs. Browning, Elliott, Hancock, McCoy, Onuf, and Brush.

REGULAR MEETING, NOVEMBER 26, 1902.

DR. WINFIELD addressed the Society on "Dermatosis of the Insane: A Report of the Examination of the Patients of the Long Island State Hospital."

The discussion was conducted by Drs. R. M. Elliott, Browning, Brush, Warren, Onuf, and Winfield.

In commemoration of the death of its late member and former president, secretary, treasurer, and librarian, Dr. Wm. H. Haynes, the Society, then, through its Secretary, conveyed its sincere sympathy to his widow and passed resolutions aiming to carry out, by contributions of the members, a scheme which had been installed by Dr. Haynes with a generous contribution, namely that of establishing a fountain in the Building of the Society.

REGULAR MEETING, DECEMBER, 18, 1902.

The Society listened to two papers, one by Dr. E. G. ZABRISKIE on "Multiple Neuritis in a Child," the other by Dr. WM. BROWNING on "A Method of Relieving Pain in Tumors of the Brain." The former was discussed by Drs. Browning, Brush, Onuf, Elliott, and Zabriskie, the latter by Drs. Brush, Barber, Morton, R. M. Elliott, Hancock, and Browning.

The following officers were then elected for the ensuing year: as President, Dr. R. M. Elliott; as Vice-President, Dr. B. Onuf; as Secretary and Treasurer, Dr. E. G. Zabriskie.

BROOKLYN MEDICAL SOCIETY.

The 78th regular monthly meeting of the Brooklyn Medical Society was held on the evening of Friday, the 19th of December, 1902, at Hart's Hall, 1030 Gates avenue, the President, DR. ALGERNON T. BRISTOW, in the chair.

Minutes of the previous meeting were read and adopted. The Secretary then announced the death of our Vice-President, Dr. Malcom E. Parrott, and also that another of our members, Dr. Henry Bauer, had recently died.

Admissions for membership: Dr. D. Myerle and Dr. Edward E. Shutz.

Dr. Walter C. Wood as Chairman of the committee appointed to draft resolutions on the death of Dr. William H. Haynes, reported that the committee had completed its work and presented to the society for inspection appropriate resolutions in book form which were to be given to Dr. Haynes' family.

A motion was duly made, seconded and carried that the society accept the report of the committee.

On motion duly made, seconded and carried, the Secretary was instructed to draft a letter to the immediate family of Dr. Parrott expressing the deep sympathy felt by the society in their bereavement, and the great loss sustained by the Brooklyn Medical Society and the medical pro-

fession in general in the death of one of its most active and beloved members.

CLINICAL SECTION.

Dr. Stephen H. Lutz, Chairman.

Dr. John A. Lee presented a specimen of Tubercular Testicle, a specimen of Fibroid of the Uterus and reported a case of Tetanus.

Dr. Stephen H. Lutz presented a specimen of Nasal Polypus and reported a case of Perforation of the Roof of the Tympanum; also a report of a case of Angioma of the Ear.

Dr. Walter C. Wood presented a specimen of Sarcomatous Testicle.

PROGRAMME.

"Certain points concerning the Diagnosis and Treatment of Typhoid Fever." Dr. Glentworth R. Butler.

Discussed by Dr. Joshua M. Van Cott, Dr. Jacob Fuhs, Dr. H. E. Rogers, Dr. Stephen H. Lutz and Dr. C. L. Fincke. A vote of thanks was tendered to Dr. Butler and to Dr. Van Cott.

A motion was made, seconded and carried, that the society have an annual dinner.

A motion was duly made, seconded and carried, that the President appoint a Committee to take charge of arrangements.

HUGH EDWARD ROGERS, M. D.
Recording Secretary.

LIST OF PHYSICIANS WHO HAVE DIED IN THE BOROUGH OF BROOKLYN DURING THE YEAR 1902.

PREPARED BY S. J. BYRNE, M.D., OF THE HEALTH
DEPARTMENT.

Andrews, Benjamin, 227 Berkeley Place. Died June 26, 1902. Age 82 years, 3 months and 26 days.

Bagnicki, Ernest, 239 Hopkins Street. Died May 16, 1902. Age 62 years.

Bodkin, Dominick G., 290 Clinton Avenue. Died January 26, 1902. Age 68 years, 9 months and 11 days.

Bonnell, Charles L., 5 Hanson Place. Died January 15, 1902. Age 55 years and 3 months.

Brown, David N., 268 S. 3rd Street. Died August 2, 1902. Age 58 years, 11 months and 15 days.

Burnard, Henry W., 364 Jay Street. Died February 14, 1902, at St. John's Hosp. Age 48 years.

Burke, Ulrick W. C., 273 Berry Street. Died April 3, 1902. Age 38 years.

Baur, Henry, 250 Saratoga Avenue. Died December 18, 1902, at German Hosp. Age 27 years.

Bishop, Henry, 338 Ninth Street. Died December 18, 1902, at Brentwood, L. I. Age 64 years.

Cushing, George W., 221 Schermerhorn Street. Died March 30, 1902. Age 53 years.

Doty, George H., 124 S. Oxford Street. Died January 6, 1902. Age 41 years, 9 months and 15 days.

Demby, Alexander, 140 Summer Avenue. Died December 18, 1902, at St. John's Hosp. Age 24 years.

Gallagher, Joseph H., 176 Vernon Avenue. Died April 9, 1902. Age 25 years and 1 month.

Haynes, William H., 401 Bainbridge Street. Died November 15, 1902, at St. John's Hosp. Age 46 years.

Huss, Max H., 44 Sumner Avenue. Died April 18, 1902. Age 59 years, 3 months and 25 days.

Johnson, Charles H., 209 Greene Avenue. Died September 18, 1902. Age 49 years.

Kneuper, Frederic J., 130 Greene Avenue. Died September 18, 1902. Age 63 years, 3 months and 8 days.

Leonard, Algernon, 131 McDonough Street. Died June 14, 1902. Age 60 years, 2 months and 10 days.

Matthews, Henry C., 804 Quincy Street. Died October 22, 1902, at Clifton Springs, N. Y. Age 58 years.

Matherson, Seraphine, 420 Vanderbilt Avenue. Died July 22, 1902, at St. John's Hosp. Age 56 years.

Maine, Hallock R., 24 Seventh Avenue. Died June 11, 1902. Age 37 years, 1 month and 20 days.

Paulson, John J., 194 Nelson Street. Died September 17, 1902. Age 40 years and 1 month.

Praeger, Herbert F., 257 a Tompkins Avenue. Died June 22, 1902. Age 52 years.

Parker, Edward L., Long Island State Hosp. Died July 16, 1902, at Sea Gate. Age 27 years.

Pierrepont, William A., 1 Pierrepont Place. Died January 6, 1902. Age 46 years, 5 months and 21 days.

Richardson, John E., 127 S. Oxford Street. Died March 23, 1902. Age 51 years and 23 days.

Shattuck, Henry P., 891 Greene Avenue. Died September 6, 1902. Age 57 years, 9 months and 11 days.

Von Urff Charles A., 170 Barbey Street. Died July 16, 1902. Age 35 years, 4 months and 8 days.

Wade, James D., 252 S. Ninth Street. Died October 19. Age 64.

Wilde, Thomas, 121 Seventh Avenue. Died October 6, 1902. Age 64 years.

Williams, William H., 209 17th street. Died January 3, 1902. Age 79 years, 11 months and 25 days.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed BROOKLYN MEDICAL JOURNAL, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, FEBRUARY, 1903.

DR. RAYMOND.

In noting the resignation of Dr. Joseph H. Raymond as Editor-in-Chief of the BROOKLYN MEDICAL JOURNAL, it is the desire of his successor to direct attention to one who has held, and still holds, title to a long and honorable career, spent in an active life devoted to the profession of medicine, in this city.

Fifteen years ago when the Council and Medical Society of the County of Kings determined to launch a medical journal which should embody in permanent form the work of the Society and reflect the activity of the medical organizations of the city and that of their individual members, Dr. Raymond was at once installed as Editor-in-Chief. Besides the editorial control of the BROOKLYN MEDICAL JOURNAL, exercised since its inception, Dr. Raymond is the author of the "History of the Long Island College Hospital; Its Faculty and Its Alumni," as well as the textbook, "Human Physiology."

In the educational field, Dr. Raymond has long occupied a prominent place in Brooklyn. Among other offices, he has held the chair of Physiology and Hygiene in the Long Island College Hospital since 1873, and since 1886 has been the Secretary of the Faculty. In the same institution he held the office of Lecturer on Gynecology for five years. For many years Dr. Raymond has also been Lecturer on Physiology in the Brooklyn Normal School for Physical Training. He is Secretary and Treasurer of the Hoagland Laboratory, and has been a Director of the same since its founding. He has acted as Secretary to, and Trustee of, the Polhemus Memorial Clinic during the period of its existence, and for twelve years has been a Director of the Brooklyn Eye and Ear Hospital.

In administrative work Dr. Raymond has long served in various connections with the Brooklyn

Health Department, occupying at present its highest office.

During the years of the JOURNAL's existence the library of the Society has grown from a very insignificant nucleus to its present enviable proportions. To its needs Dr. Raymond has always devoted a generous share of his attention, and to him the library will always owe a large indebtedness for services performed in its behalf. The JOURNAL has attained in the comparatively short period of its existence a very gratifying measure of prosperity, which is in itself the evidence of Dr. Raymond's successful guidance in his capacity of Editor-in-Chief.

AN ANNUAL MEDICAL LECTURESHIP IN BROOKLYN.

The profession in Brooklyn is fortunate in having had for three years the privilege of hearing first hand reports of the results of advanced workers, each in his especial field of work. The Brooklyn Medical Club deserves the thanks of the attentive audience which, in January, listened to the lecture on Hook-worm Disease, by Prof. Stiles. This event was the third of a series of what we may hope has practically become an established annual lectureship under the auspices of the Brooklyn Medical Club.

The first lecture given two years ago by Prof. Adami, of Montreal, marked the initiation of an epoch in the medical affairs of the city. The second, last year, by Prof. Scripture, Head of the Department of Psychology at Yale, was also a notable contribution.

These able lecturers, while in the city, are guests of the Brooklyn Medical Society, the members of which have deemed the privilege of so contributing to the medical activity of Brooklyn its own reward. Their generosity merits the appreciation of the profession of Brooklyn, which is never lacking in sincerity.

A LARGER JOURNAL.

We wish to announce that through the energy of our Business Manager, the BROOKLYN MEDICAL JOURNAL is at present offering to its readers a considerably increased amount of literary matter. The later issues contain about fifty pages, which is about double the amount published in its earlier magazine form. It is the belief of the Editors and Business Manager that the usefulness of the JOURNAL will be increased thereby. More literary material can now be ac-

commodated in the JOURNAL than before, and irritating delays in publishing individual papers can for the most part be avoided. There is no lack of good material read and written by the professional men of Brooklyn to fill this increased number of pages, and it is the aim of the Editors to turn the best of this literary work into the columns of the BROOKLYN MEDICAL JOURNAL.

AN INDEX MEDICUS.

It is a pleasure to note that an *Index Medicus* is to be re-established and under such auspicious circumstances that its permanency is assured. The Carnegie Institution of Washington will be the publishers. The new publication aims to continue the former *Index Medicus*. It will be issued monthly and purposes to contain the titles in full of books, pamphlets, theses, contributions to co-operative works and original articles in journals, transactions of medical and scientific societies and the like, arranged under subject headings. It will represent the literature of the preceding month of medical publications, both at home and abroad, its issue being delayed sufficiently to allow for the arrival of foreign journals.

THE MEDICAL LIBRARY AND HISTORICAL JOURNAL.

A journal devoted to the bibliography of medicine and allied subjects is an entirely new departure, and one which every medical bibliophile will welcome. A love of books as books has never extended so widely as to cover the field of medical literature, except in certain lines. In the case of the old black-letter and vellum-bound volumes upon which the highest art of the book makers of a former day was frequently expended, the qualities of mere workmanship appeal strongly to the book-lover, and as such have always been welcomed in libraries and book collections. More recent medical books, on the other hand, have, as a class, been regarded differently. Medical books of a previous decade have, for the most part, been looked upon as the necessary waste paper of scientific progress. Physicians, in counterdistinction to the men of other professions, have been in the habit of throwing out the old, as new editions appeared. Even in old book-shops, medical works dated but a few years past are regarded as undesirable stock.

Medical libraries are doing much to uphold the

declining dignity of aging medical works, and the new *Journal* will do more. It might well carry the motto: "Once a book, always a book."

The official home of the new journal is that of the Library of the Medical Society of the County of Kings. The members of this Society may regard with satisfaction the conditions, by virtue of which, the new journal is able to regard the walls of the library as its birthplace. Mr. Huntington, our librarian, is one of the two editors of this new sheet to which the BROOKLYN MEDICAL JOURNAL offers its best wishes, and for which it bespeaks the interest of the members of the County Society.

THE LIBRARY FUND.

The following subscriptions to the above fund have been received by the Treasurer up to January 14, 1903:

A. H. Brundage, M.D.....	\$ 10
A. T. King, M.D.....	10
C. H. Goodrich, M.D.....	10
J. E. West, M.D.....	25
Wm. Kinne, M.D.....	25
A. S. Robbins, Esq.....	50
Robert Le Fevre Fairbairn, Esq....	28

\$ 158

Previously acknowledged 6,735

\$6,893

Subscription to Building Fund, by

Walter B. Chase, M.D..... 107

\$7,000

Obituary.—Dr. Susan R. Pray, one of the conspicuous women physicians of Brooklyn, died last week in her home at 436 Washington avenue. She had been ill since November last. She was born in Brooklyn forty-five years ago, and was a graduate of the Post-Graduate College. After graduation she practised in Brooklyn for three years and then decided to go to China as a missionary for the Woman's Foreign Mission Board of the Methodist Episcopal Church. She was in China two years. Her health failed, and she had to return to Brooklyn.

Dr. John Connell of Jersey City has been appointed medical inspector of the Hudson County Board of Health, to succeed Dr. Charles C. Hendrik. Dr. Connell will resign as a member of the board to accept the place, which pays \$1,500 a year.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon street.

Dr. Charles Jewett read a paper at the January meeting of the Gynecological Society, in Washington, D.C., on "Hysterectomy in Puerperal Infection."

Dr. Charles Dwight Napier announces his retirement from the general practice of medicine. He will devote himself exclusively to orthopedic surgery.

Two recent marriages are of interest to the Brooklyn profession. On Dec. 15, 1902, Dr. James S. Waterman wedded Miss Sara C. Brown, at Riverside, Cal.; and on Dec. 29, Dr. M. Edwin Claffy announced his marriage to Miss Suzanne L. Cahill, in Brooklyn, N. Y.

May Benton Hawxhurst, wife of Dr. Henry D. Hawxhurst, of Greenwich, Conn., and only daughter of Dr. Stuart H. Benton, of Brooklyn, died at Greenwich, Conn., Dec. 19, 1902, of suppurative endo-carditis, following an attack of acute rheumatism.

The annual dinner of the Long Island Medical Society will be held at the Lincoln Club, Feb. 3, 1903. Dr. Ralph H. Pomeroy will act as toastmaster.

At the annual meeting of the Staff Association of the Kings County Hospital, the following officers were elected: President, Dr. J. C. Fitzgerald; Vice-President, Dr. Calvin F. Barber; Secretary, Dr. Arthur C. Bush. Dr. J. C. Duryea tendered his resignation as attending physician in the department of chest diseases, and was nominated as consultant in that department. Dr. George F. Little was appointed assistant to Dr. Lucas in the department of Pediatrics.

The rumors regarding the threatened closing of the doors of the Williamsburgh Hospital, we hope, are without foundation. No one of the smaller hospitals in Brooklyn can show a cleaner page of statistics as regards its operations, nor a more varied list of major operative cases. While not a modernly constructed hospital in any sense, the work done will compare most favorably with that of larger and wealthier institutions. On the medical and surgical side, man-

aged entirely by the younger element in the Profession, the hospital was a credit to the city, and deserves more of the city's funds than allotted. With the wards constantly full to overflowing, and private rooms engaged in advance, the institution paid out a little more each month than was earned, thereby causing an increasing deficit, which at present amounts to \$3,150.45. For 1902 there were 532 persons cared for, 749 ambulance calls, and 11,905 cases treated free in the dispensary. City receipts were \$2,791.28; from other sources, \$9,587.51, a total of \$12,378.79. Disbursements for 1902 were \$15,529.24. The city allowed 80 cents for surgical cases, and 60 cents for medical; in addition, only 35 cents for children. We trust that the efforts of its friends will assist this worthy "little hospital" to continue, as in the past, a credit to its managers and medical board.

Dr. Jas. E. Blake has recently returned after a course of study in noted European centres.

Dr. Paul M. Pilcher returned last month after a profitable tour of travel and study on the Continent.

Dr. Addison Raynor announces his removal from 977 Flatbush Avenue to 2019 Church Avenue.

The annual dinner of the Associated Physicians of Long Island was held at the Union League Club January 24th, 1903. Dr. Calvin F. Barber, President of the Association, acted as master of ceremonies.

At the midwinter meeting of the Association of the Alumni of the Long Island College Hospital, Dr. Melancthon Woolsey Stryker, President of Hamilton College, and well known as an eminent pedagogue and distinguished orator, delivered the address.

We regret to chronicle the death of Dr. Susan Pray from Bright's disease. Dr. Pray was a member of the Kings County Medical Society and well known as one of our ablest female practitioners.

There is at present a bill pending in Congress to give the wife and children of Major Walter Reed, Surgeon, U. S. A., an annual pension of \$4,000. We sincerely trust that such a measure will become active, in view of Dr. Reed's contribution to Medicine. To him, more than any one else, is due the discovery of the cause and the means of prevention of yellow fever. As the N. Y. Sun says: "The debt that this country owes to Dr. Reed can scarcely be estimated in money, for it means the saving of untold annoyance to many of the people of the United States, of mil-

lions of dollars to our merchants, and of an enormous number of human lives in the future." It is interesting to note that to his efforts and the efficient quarantine and sanitary regulations instituted by this Government, Cuba is free from yellow fever for the first time in 170 years. The health and commerce of our Northern and Southern cities are no longer menaced, while all the annoyance of quarantine, disinfection of clothing and person and ships, will be unnecessary, if proper measures are instituted to prevent the spread of the disease by the mosquito.

The testimony of Dr. W. K. Dolan, of Scranton, Pa., before the Strike Arbitration Commission is interesting. He testified "that among the 1,107 inmates of free hospitals in the district embracing the poor sections of Wilkesbarre, Scranton and adjoining towns 216 are mine workers. Of these 216 men, 33 are suffering from miner's asthma. "The superintendents of these institutions tell me that 95 per cent. of the mine workers that are brought in as patients are victims of intoxication. From various authorities I find there are 26 occupations generally regarded as more dangerous than coal mining." In answer to the question "Does mine work injure the lungs?" he said: "Not particularly. In fact, most mine workers are good singers; some are exceptionally powerful singers. During the strike it may be remembered that many glee clubs were sent out to raise money, and these men had, as a rule, fine voices." The testimony further brought out the fact that the miners work not more than five or six hours a day and that the work is not hard.

The New York Academy of Medicine announces that the sum of one thousand dollars will be awarded to the author of the best essay in competition for the Edward N. Gibbs Memorial Prize. The subject of the essay is, "The Etiology, Pathology and Treatment of the Diseases of the Kidney." All essays must be presented on or before October 1st, 1904, and must be in English, typewritten, designated by a motto, or device, and accompanied by a sealed envelope bearing the same motto, or device, which shall contain the name and address of the author. No envelope will be opened except that which accompanied the successful essay. The Academy reserves the right, according to the direction of the donors, not to award the prize if no essay shall be deemed worthy of it. The Academy will return the unsuccessful essays, if claimed by their respective authors, or by authorized agents, within six months. An essay must show originality in order to obtain the prize. The

competition is open to the members of the regular medical profession of the United States. The original of the successful essay shall be the property of the Academy, and, according to the deed of gift, will be published in its Transactions. The essays shall be transmitted to the Committee of the Trustees of the New York Academy of Medicine on the Edward N. Gibbs Memorial Prize.

It is a matter worthy of comment that Dr. Henry A. Fairbairn, late President of the Kings County Medical Society, personally raised for the library fund over \$7,000, and enough more to provide bindings for books which needed that care. Roughly estimated, Dr. Fairbairn has given over one-third of his time to the duties of his office since he was President. Dr. Fairbairn is to be congratulated for his efforts, and deserves the thanks of the Society for his successful administration of the Society's interests. He was nominated for Trustee, thus allowing him a further opportunity to render his aid and experience in matters pertaining to the future welfare of the Society.

The discovery of a remedy for septicemia, by Dr. Charles C. Barrows, of the house staff of Bellevue Hospital, is exciting considerable interest and discussion. The method consists of an intravenous injection of formalin, 1-5,000, 500 c. c. being used. The patient on whom the experiment was tried was pronounced by other physicians past medical aid, as her temperature at that time was 108 degrees, and the pulse 160. Death is usually the outcome, under such conditions. The patient rallied at once, and at present is reported convalescent and soon to be discharged. Up to date, two other cases were given this treatment, one in St. Vincent's Hospital and the other in the Hahnemann. Both are reported as convalescent. While it is early yet to predict the absolute success of this procedure, and to rank it among our specifics, still it deserves the closest attention of physicians everywhere. Should the discovery stand the test, its value as a boon to mankind is incalculable, and it will rank as one of the most important contributions to medical science of this generation.

It is planned to raise about \$100,000 for a proposed Jewish Hospital in Brooklyn.

By the will of Mrs. Isadora Ritter, \$5,000 is left to St. John's Hospital, Brooklyn, to endow a bed in memory of her sons, Joseph and Judson Dimoch.

\$475,000 has been appropriated for a contagious hospital and other new buildings for the Health Department of New York.

BOOK REVIEWS.

A TEXT-BOOK OF MATERIA MEDICA, THERAPEUTICS AND PHARMACOLOGY. By George F. Butler, Ph.G., M.D. Fourth edition, thoroughly revised. Philadelphia and London, W. B. Saunders & Co., 1902. 896 pp., 2 pl. 8vo. Price: Cloth, \$4.00; Sheep or Half-Morocco, \$5.00.

We are glad to receive this valuable work with additions which bring it up-to-date. Changes are to be noted in many parts. They record recently discovered facts in this department.

GYNECOLOGY: OBSTETRICS: MENOPAUSE. Part 1. The General Practitioner. His Own Gynecologist. Part 2. Common Sense in Obstetrics. Part 3. The Change Life in Woman. Being a Revised and Enlarged Re-issue of Three Serial Articles Appearing in "The Medical Council." Phila. Medical Council, 1902. xii, 17-326 pp. 8vo. Price: Cloth, \$2.50.

It is fair to say that no better epitome of the three subjects herein treated has ever been presented to the medical profession in one volume. It is not a mere dictionary of terms and methods, but it teaches principles and their application, sets aside some fallacies and gives much new thought.

The author has given under each subject, plain practical suggestions which are the embodiment of his own experience during years of actual practice.

It is worthy of a place on the table of every practitioner.

FREDERIC J. SHOOP, M.D.

AMERICAN TEXT-BOOK OF OBSTETRICS FOR PRACTITIONERS AND STUDENTS. By Drs. J. C. Cameron, E. P. Davis, R. L. Dickinson, H. J. Garrigues, B. C. Hirst, C. Jewett, H. A. Kelly, R. C. Norris, C. D. Palmer, G. A. Piersol, E. Reynolds, H. Schwarz, J. C. Webster. Richard C. Norris, M.D., Editor; Robert L. Dickinson, M.D., Art Editor. *Second Edition, Revised.* Phila. & Lond., W. B. Saunders & Co., 1902. 2 vols. 8vo. Price: Cloth, \$7.00; Half Morocco, \$8.00.

The second edition of this work is admirably adapted as a text-book for instruction in the art of Obstetrics, not only in the arrangement of the reading matter and its excellent classification, but in the matter of its pictorial representations which emphasize the text and convey to the mind through the eye what could not be so clearly set forth in words. Many chapters have been rewritten or revised, embracing the results of the latest Bacteriologic and Chemicobiologic research, as applied to the pathology of midwifery and a wider range of surgery in treating many of the complications of pregnancy, labor and the puerperal period.

The illustrations are numerous, many are entirely new, some are familiar ones selected from other sources, and a few of the latter are redrawn, correcting a fault here or emphasizing a point there. Not a few are from the pencil of Dr. Robert L. Dickinson, whose name insures minute accuracy and clearness.

The corps of contributors have spared no pains to make the work one of the best in the field.

FREDERIC J. SHOOP, M.D.

THE TREATMENT OF FRACTURES. By Charles L. Scudder, M.D. Third Edition, Thoroughly Revised. Phila & London, W. B. Saunders & Co., 1902. 485 pp. 8vo. Price: Buckram, \$4.50; Half Morocco, \$5.50.

This third edition of Dr. Scudder's book presents all of the excellent features of the former editor's and adds

much new material. Several new and less common fractures are described. A chapter on gunshot fractures of long bones has been added. The value of the work has also been increased by the addition of the reports of surgeons in the field during the recent wars. These give particularly the results of observations upon the effect of small-calibre bullets.

The work opens immediately with the consideration of fractures of the skull, and continues through the skeleton in anatomical order. After this general plan has been carried through to fractures of the foot, there are additional chapters on anatomical facts regarding the epiphyses, gunshot fractures of bone, the Roentgen ray and its relation to fractures, the employment of plaster-of-Paris, and the ambulatory treatment of fractures.

The illustrations are not only good, but instructive, and throughout the whole work there is an eminently practical tone. The pictures show just the things that the student and practitioner should wish to know.

The work lacks a chapter on the general considerations of fractures, in which should be discussed the causes and the pathology of fractures; the healing and general principles of the treatment of fractures; and the causes and treatments of the defects in healing. Particularly lacking is a systematic presentation of the treatment of open fractures.

A peculiar arrangement is the introduction of some of these general principles under the discussion of special fractures. Thus under fractures of the humerus we find discussed malignant diseases associated with fractures of bone. Non-union of fractures is treated of under fractures of the bones of the forearm. Tetanus is also treated under this same head. Under fractures of the thigh in childhood we find discussed traumatic gangrene, septicemia, malignant edema, and fat embolism. Thrombosis and embolism are discussed in the chapter on fractures of the leg.

We are glad that the author has adopted the terms "open fracture" and "closed fracture," as advocated by Dr. John B. Roberts of Philadelphia.

This work has its very practical side to recommend it. It advocates mechanical simplicity; and is a safe and most excellent guide to be placed in the hands of the student and practitioner.

J. P. WARBASSE.

DISEASES OF THE SKIN. A Manual for Students and Practitioners. By Joseph Grindon, Ph.B., M.D. (*Lea's Series of Pocket Text-Books.*) Phila. & N. Y., Lea Bros. & Co., 1902. Col. front., 377 pp. 8vo. Price: Cloth, \$2.00; Flexible Leather, \$2.50.

We look upon this comparatively small volume as an interesting and valuable contribution to Dermatology. We have read it from cover to cover; in every line it conveys the author's personality and independence of thought, and his occasional epigrammatic summaries of conditions, conclusions, etc., referring to particular individual or groupings of Skin Affections, are exceedingly refreshing, after having waded through the prolix descriptions, arguments, etc., of the larger Dermatological Treatises. As a rule, too, we find his Epigrams true, a thing not always to be said.

The author in his very short and concise introductory chapters, as, for instance, those on Symptomatology, Etiology, and Rules for Diagnosis, covered the ground well. His classification is his own, and is a sensible and easily followed one, in the main agreeing with, but not slavishly following the classical Hebra, etc. His description of the various diseases is naturally brief, but clear; in a work of this size treatment and formulas therefore are not, and cannot be of an extended nature, but the indications are fairly given. The illustrations are up to the average mark. The headings

of the various classes might be made a little more prominent and distinct with advantage; it would almost seem as if matter was crowded together to make the book smaller.

On the whole we can commend and recommend the volume highly, and could have wished to have been a collaborator in the work, so well does it in manner and matter reflect our personal views. S. SHERWELL.

DISEASES OF THE PANCREAS AND THEIR SURGICAL TREATMENT. By A. W. Mayo Robson, F.R.C.S., and B. G. A. Moynihan, M.S., (Lond.), F.R.C.S. Phila. & Lond., W. B. Saunders & Co., 1902. Front., 293 pp. 8vo. Price: Cloth, \$3.00.

A book written by English surgeons and dedicated to the surgeons of America is a rarity. In the present instance it is a graceful acknowledgement of the courtesies extended to the principal author of the book before us by the American Surgical Association upon the occasion of his visit to this country two years ago. In honoring Mr. Robson, however, the Association did but honor itself, for he is the exponent of that which is representative of the most recently acquired, as well as the most valuable knowledge upon the subject of which the work treats. This knowledge, like all knowledge of its kind, must be, in great measure, based upon the functions of the organ. The study of the pathology of an organ necessarily leads to an inquiry as to its functions, and vice versa. This is very clearly suggested by the chapter upon Anatomy and Structure of the Pancreas, as well as the account of the experimental work upon this organ. Since the now classic work of Langehaus, who, in an inaugural thesis in 1869 described the structures now known as the "Islands of Langehaus," to the symposium upon injuries and diseases of the pancreas presented at the XIII International Medical Congress held at Paris in 1900, in which Mr. Robson took a leading part, the attention of the profession has been attracted to this gland and, particularly since the last named event, a keener interest has been awakened in its pathology and the treatment of its diseases.

The anatomy of the organ, both general and descriptive, as well as surgical, together with its development and abnormalities, are treated of quite as fully as the scope of the work will permit. The chapter upon the experimental work forms a most interesting as well as instructive section, and is well worth careful perusal, and the space devoted to it is far from being wasted or misapplied. Then follow chapters upon injuries to the pancreas, pancreatitis, both acute, subacute, and chronic, to each of which separate chapters are devoted. This is also the case with pancreatic calculus. The space devoted to pancreatic cysts is greater than that given to any other one division of the subject. This, because of the importance of the subject, is fully warranted. The book ends with a chapter upon new growths of the organ.

The illustrations are well up to the standard established some years since by the well known publishing house which has brought out the American edition of the work, and the paper and type are of the very best. The book is one of the books of the year, and no surgeon who desires to attain to, or remain in, the front rank of advanced clinicians, nor conscientious student of one of the most interesting branches of medical science, can afford to forego the advantages of its help.

G. R. FOWLER.

THE INTERNATIONAL TEXT-BOOK OF SURGERY. By American and British Authors. Edited by J. Collins Warren, M.D., LL.D., Hon. F.R.C.S., and A. Pearce Gould, M.S., F.R.C.S. Second Edition, Thoroughly

Revised. Vol. 1. General and Operative Surgery. Vol. 2. Special or Regional Surgery. Phila. & London, W. B. Saunders & Co., 1902. 2 vols. 8 vo. Price: Cloth, \$10.00; Sheep or Half Morocco, \$12.00.

A call for a second edition of the International Text-Book of Surgery is a tribute to the distinguished editors and authors who have contributed to its success.

We note that many of the chapters have been revised and some extensively rewritten. Altogether, the work is an excellent exposition of the science of surgery at the present time. There is so much of surgical thought in the transition stage that revision is constantly demanded to make the thought of yesterday a standard for to-day. Space would not permit us to review at length each chapter. As a whole, they are written by men who are acknowledged masters of the subject they exploit. We do not believe that the value of a Text-Book of Surgery is enhanced by such seemingly unnecessary divisions of the subject. We believe that less segmentation would give greater literary integrity to a work which in other respects meets all the requirements of a modern text-book.

WILLIAM FRANCIS CAMPBELL.

SPECTACLES AND EYEGLASSES; Their Forms, Mounting and Proper Adjustment. By R. J. Phillips, M.D. Third edition, revised. Philadelphia, P. Blakiston's Son & Co., 1902. VIII., 17-109 pp. 8vo. Price: Cloth, \$1.00.

The reviewer is pleased to note that Phillips' handbook has been appreciated by the profession to such an extent that a third edition has just been issued. This treatise gives much practical information on the art of adjusting glasses. Many important points are brought out which are not mentioned in the usual works on refraction.

JAMES INGALLS.

DISEASES OF THE EYE: A Handbook of Ophthalmic Practice for Students and Practitioners. By G. E. De Schweinitz, A.M., M.D. Fourth edition, thoroughly revised. Philadelphia and London, W. B. Saunders & Co., 1902. 773 pp., 6 col. pl. 8vo. Price: Cloth, \$5.00; Sheep or Half Morocco, \$6.00.

The whole book has been revised and some parts rewritten. It is noted that in a former edition the statement was made that young people (under 20) with good visions and a moderate degree of myopia (under 5 D) may wear the full correction. In the last edition, however it is held that age has little influence on the amount of reduction: "A myope of 6 D would probably require from 3 D to 4 D for reading."

About twenty new subjects have been introduced, among the more interesting of which mention may be made of Atheromatous Ulcers of the Cornea and also Ocular Signs of Diseases of the Sphenoid and Antrum.

JAMES INGALLS.

New York Prison.—The New York State Prison Commission, in its annual report, recommends the employment of penitentiary convicts in agricultural work and on highways, and of jail convicts on highways, and protests against legislative exemptions from the provisions of the convict labor law. "If one industry is exempted," the Commission says, "the result is the transfer of the men engaged in the making of that product to some other industry. One class of labor is benefited at the expense of another class, which is unfair to the latter." An enlargement of Sing Sing Prison, to accommodate 500 more prisoners, is suggested.

AN ESSAY UPON THE GENERAL PRINCIPLES OF PREVENTIVE MEDICINE,

BY W. WAYNE BABCOCK, M.D.

Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia; Pathologist Kensington Hospital; Assistant Pathologist Philadelphia Hospital, etc.

Awarded the first prize of one thousand dollars in the competition instituted by The Maltine Company.

(Continued from p. 50.)

Electric accidents from street currents may be *prevented* by thorough insulation, and by the use of rubber or other non-conducting gloves and shoes by the workmen. Linemen should be carefully instructed as to the proper method of handling live wires. Lightning rods protect buildings to which they are properly applied, except under rare circumstances. During thunderstorms the shelter of trees or other tall or isolated conductors should be especially avoided.

The Roentgen Ray.

The usual lesion from exposure to the X-ray (*Roentgenism*) is the so-called X-ray burn or *focus tube dermatitis*. This is a chronic inflammation of the skin characterized by erythema, pigmentation, hyperplasia, induration, alopecia, and at times ulceration and necrosis. These lesions are most pronounced over the area of entrance of the rays; but at times occur upon the corresponding opposite side of the member, the area of exit. The intervening tissues or organs may also suffer. The bones may develop an osteoplastic periostitis, and instances of cerebral and intro-abdominal disturbance are recorded. The lesions almost invariably follow prolonged or frequently repeated exposures, especially those made by tubes of *low vacuum* placed in close proximity to the tissues. Personal *idiosyncrasy* seems to be a predisposing factor. The method used for generating the electricity employed is immaterial.

The lesions are apparently due to trophic alterations in the tissue cells caused by the radiant energy. The incubation period varies from a few days to a month. Theories ascribing the disease to electric induction; de-electrification; the bombardment of the tissues by particles of platinum or glass; the generation of ozone in the skin; or ultra-violet rays, have either been disproved or have insufficient proof.

Prophylaxis.—The prevention of focus tube dermatitis consists chiefly in using tubes of the highest vacuum ("*hard tubes*") compatible with the resistance of the part of the body examined, and in avoiding a closer proximity of the tube to the skin than eight inches. A protective cover of sheet-rubber and the use of a grounded aluminum shield have been recommended, but, at most, are only partially effective. The operator should avoid unnecessary exposure, especially when starting or stopping the current. There is less dan-

ger when the rays strike the skin obliquely. Single, skillful applications should not be followed by dermatitis, but it is difficult to prevent lesions in operators or others who are repeatedly exposed to the rays.

Becquerel's Rays.

In 1896 M. Becquerel discovered that certain uranium salts emit invisible radiant energy resembling the X-rays. Later investigations by Madame Curie have shown that the pitchblendes, chacocite, autunite, cleveite, monazite and other minerals also possess radiant energy. In pitchblende, a substance (polonium) analogous to bismuth, but having 4,000 times the radiant energy of uranium, was found. Later a second ray-emitting element, called radium, was also discovered, and M. Debserne found in pitchblende a third active body, actinium. These rays possess luminosity and actinic and skiagraphic power, and render the air through which they pass a conductor of electricity. They are not capable of polarization, reflection or refraction, and the rays emitted by the different substances vary in their properties. They excite the phosphorescence of gems. Walkoff and Geisel first noted that energetic action of the Becquerel's rays upon tissues to which the radiant substances are brought in close proximity, and this has since been confirmed by Becquerel and Mme. Curie. The skin becomes hard and painful, and erythema, desquamation, and chronic ulceration have resulted from prolonged exposure to radiferous substances. The burns may persist for months, and have resulted from carrying tubes containing active radiferous barium chlorid and other substances in the pocket. The changes resemble those produced by the cathode or solar rays.

Light.

Solar rays (sunlight) have a marked influence upon the general nutrition, increasing tissue oxidation and the elimination of carbon dioxide. The pleasanter emotions are enhanced, and gloom and terror may be dissipated by light. Reflexly, more or less persistent forms of hyperemia and other phenomena may result, while different stages of hypnosis have repeatedly been produced by gazing at luminous objects. Locally, they alter the accumulation of pigment in the skin, causing freckles and tan. If the action be more intense or prolonged, erythema, desquamation, vesication, and even superficial eschars may result except in the habituated. Mucous membranes are susceptible. Snow blindness and gold blindness express the injurious results of strong reflected light upon the retina, while conjunctivitis, blepharitis and other ocular disorders may also be produced. The ultra violet rays are chiefly responsible for these various lesions. The thickness of the skull in certain Ethiopians has been attributed to prolonged exposure to intense solar rays, and the dark-skinned races of the tropics apparently bear evolutionary evidence of the effects of habitual

exposure to sunlight. Of especial importance is the influence of sunlight upon immunity. Exposure to the solar rays not only reduces the liability to infection, but has shown a curative action in cases of lupus, pulmonary tuberculosis and other diseases. In such cases the ultra violet rays are effective, not only by a direct bactericidal action, but also by increasing the blood supply and stimulating tissue resistance. Light rays may traverse nearly any of the tissues of the body. Thus, photographs have been printed by light that has passed through the thorax or abdomen. The eyes may be protected from the injurious effects of light by appropriately colored glasses. Those exposed to intense white light should wear smoked glasses, while it is advised that workers on gold should wear glasses having a green tint.

The *electric light* may produce similar cutaneous lesions. Although the solar rays have an energetic action after passing millions of miles, the electric light is active only within a few meters, the *cathode rays* only within a few centimeters, and Becquerel's rays only within a few millimeters.

Sound.

Auditory impressions have a marked effect upon the higher cerebral centers in the way of exaltation or depression. Nervous excitation, joy, or moroseness may result from certain discordant or musical sounds. The street noises of large cities by constant nervous stimulation may predispose to neurasthenia, hysteria and chorea. The absence of sound, silence, favors abstract thought and melancholy, and is probably a factor in the prevalence of insanity in rural regions. Racking, irritating noises cause insomnia, while the continued repetition of monotonous sounds often has a soporific influence. Various degrees of hypnosis may be produced by auditory sensations, as the cataleptic conditions Charcot evolved at the Salpetriere by the stroke of a bell. Finally, certain sounds produce remote functional effects, as the irresistible desire to urinate that sometimes results from the sound of running water. Not only is it important that the street noises of cities be restricted by methods of paving, regulation of traffic and other measures; but the employment of harmonious sounds for the relief of insomnia, nervous excitement and various mental affections should have a wider application.

CHAPTER IV.

THE EXTRINSIC FACTORS OF DISEASE.

PHYSICAL—Continued.

THE ATMOSPHERE.

Animal life is dependent upon free *oxygen* as contained in the air. Imperfect supply of oxygen to the tissues produces fatty and other de-

generative changes, and increases the susceptibility to infection. Complete deprivation of air is followed by a rapid and fatal asphyxia.

Composition.

Air is a mechanical mixture of various gases, the relative proportions of which are very closely maintained over all portions of the globe and at different altitudes. The average composition by volume is:

Oxygen.....	20.96	per cent.
Nitrogen.....	79.	per cent.
Carbon dioxide...	0.04	per cent.
Argon.....	0.75	per cent.

Ammonia, oxone, nitrous and nitric acids, slight traces. There are also minute amounts of other elements, such as krypton, neon and xenon, discovered by Ramsay, and coronium, discovered by Nasini, which have unknown properties, and at present are interesting only scientifically. Besides these elements, air contains a variable amount of aqueous vapor.

Oxygen.—A large number of analyses of outdoor air show that the proportion of oxygen by volume varies from 20.92 to 20.99 per cent. The proportion is slightly less at great heights and in towns than in the country or on the sea. In man the oxygen is taken from the air by the hemoglobin, in which combination the oxygen is carried by the red blood corpuscles to the tissue cells. These cells return the oxygen to the blood in the form of carbon dioxide, and it is chiefly eliminated as such in the expired air. Inspired air loses about one-quarter of its oxygen. Large quantities of oxygen are also utilized in various inanimate processes of oxidation and combustion. The resulting carbon dioxide is chiefly absorbed by plants through the action of chlorophyll, free oxygen being returned to the air. The well-known law of diffusion of gases, which is that a gas expands and diffuses as freely in the presence of another gas as in a vacuum, accounts for the maintenance of the usual proportion of oxygen. The average quantity of oxygen absorbed daily by an adult is about two pounds, this amount being increased under conditions of activity and diminished during repose and old age. A sufficient reduction in the total amount of oxygen in the air, irrespective of the quantity of other constituents, leads to asphyxiation.

Nitrogen.—The nitrogen of the air seems to have no active part in the physiologic chemistry of the body. The same amount is found in expired as in inspired air. It serves as an inert diluent for the oxygen. While the animal kingdom seems unable to utilize nitrogen in its economy, a few microorganisms are able to produce combinations with it, forming nitrites and nitrates. Plants, especially the legumes, take the nitrates formed by microorganisms and convert them into albuminous compounds that may serve as food for the higher animals.

Argon.—Argon, discovered in 1894 by Rayleigh and Ramsay, has no known action in the

economy. Chemically it seems to be extremely inert, and it is with difficulty that any combination can be produced with it.

Carbon Dioxid.—The amount of carbonic acid gas in the air is much more variable than either oxygen or nitrogen. The average amount in pure air is about 0.03 per cent., but on mountain tops, as little as 0.017 per cent. has been found. In parts of Death Valley, California, there is such an excess that the air will not maintain animal life. It results from the oxidation of organic matter, and is, therefore, produced in all animal bodies; and in most processes of combustion, decay and decomposition. It is found in the air in larger quantities at night than during the day. The largest amounts occur during the autumn, the smallest during the winter. It is removed from the atmosphere by the action of plants, and by absorption in water, which is able to take up its own volume of the gas. Inspired air should never contain more than 7 parts in 10,000, yet in buildings crowded with people, the amount may reach as high as 40 to 50 parts in 10,000. The objection to carbon dioxid is not that it is a poison, for it seems of itself to be inert, but that it displaces oxygen; while if its amount in the inspired air is such as to be nearly or quite equal in tension that of the carbonic acid in the venous blood, the blood is less able to give up this gas, and the normal process of oxygenation is incomplete. It is a popular belief that the expired air contains certain organic impurities, and that the percentage of carbon dioxid serves as an indicator of the proportion of these supposedly toxic compounds. While the exhaled substances may have disagreeable and depressing odors, they seem to possess little toxic action.

Ozone.—Ozone is the allotropic form of oxygen in which the molecule is supposed to contain three atoms. It has a peculiar, pungent, garlic-like odor and much stronger oxidizing powers than oxygen. In the air it is rarely found in amounts greater than one in 700,000. It is more abundant at the seashore, on mountains, and near woods. In proportions greater than 4 in 1,000, it produces a marked irritation of the respiratory mucous membrane and death in the lower animals subjected to it. Its value as a health restorer is apparently overrated. When present in the atmosphere, however, it indicates a comparative freedom from organic or other oxidizable matters.

Ammonia.—This is the chief product of the decomposition of nitrogenous organic material. It is found in largest amounts where large quantities of manure or other decomposing organic substances are present. It is precipitated from the air in watery vapor, and is also removed by combinations leading to the production of nitrites and nitrates. In excess it suggests the presence of an unwholesome decomposition process in the neighborhood.

Aqueous Vapors.

Humidity is a term referring to the amount of

aqueous vapor suspended in the air. It is usually expressed by relative terms, as the amount of vapor that the air will take up varies at different temperatures. Thus, at 0° C., the air can hold 1-160 of its weight of aqueous vapor, and this amount is doubled by every rise of 15 degrees in temperature. At 15° C., therefore, it will take up twice as much as at 0° C., or 1-80 of its weight, and so on. When the air at any temperature is saturated, it is said to have a relative humidity of 100. If it is one-fourth saturated with aqueous vapor, the humidity is 25. If the aqueous vapor equals one-half the amount necessary for saturation, the humidity is termed 50. It is obvious that with a decrease in temperature the amount of aqueous vapor necessary to represent saturation, or 100 degrees humidity, rapidly diminishes, and that as soon as the aqueous vapor is in excess of the amount necessary for saturation, it is precipitated. Precipitation may also occur when the humidity is much below the point of saturation, through the action of dust, electric currents, and other agencies. Humidity is of special importance in relation to the perspiration. With low temperatures the sweat usually evaporates as rapidly as it is eliminated, so that only *insensible perspiration* occurs. As the humidity increases, the transpiration of sweat may go on as before, but the evaporation is progressively retarded until at 100 degrees humidity there is no evaporation and the skin remains constantly wet. This reduction in evaporation diminishes the natural heat dissipation, and also greatly favors heat conduction, so that with a high relative humidity, low or high degrees of temperature are poorly borne, and the extremes of temperature compatible with life more circumscribed. Great humidity, by interfering with the normal heat regulation of the body, may indirectly favor the taking of "colds" and the development of many of the infectious processes. The presence of aqueous vapor in the air serves a useful purpose by absorbing the heat from the sun during the day and by retarding evaporation and consequent heat dissipation from the earth at night. Consequently, while it intensifies the effect of heat and cold, it modifies sudden temperature changes.

Toxic Gases.

The most harmful of the gases found in the atmosphere is *carbon monoxid*, CO. This is found in large quantities in illuminating gas, and is given off in the burning of coal and charcoal. When sufficient oxygen is present for complete combustion, it burns with the formation of the comparatively harmless carbon dioxid, CO₂, and this combustion is the cause of the blue flame so often seen playing over coal fires. Should the supply of oxygen be insufficient in the burning of coal, charcoal, kerosene, or illuminating gas, portions of carbon monoxid may escape into the air, and as it is odorless, may be inhaled with serious results. Cast-iron stoves, when red-hot, absorb from burning coal considerable quantities of the gas and may give off small amounts to the air.

When inhaled, it unites with the hemoglobin of the blood, forming *carboxyhemoglobin*, a compound not decomposed by oxygen and carbon dioxid. The blood may turn a cherry red color. Death results from asphyxiation. One of the most frequent forms of serious poisonings in the United States depends upon the intentional or accidental inhalation of illuminating gas. As water-gas contains about six times as much carbon monoxid as coal gas, it is the more dangerous. Leaky fixtures are often present, or the gas may travel long distances underground from defective mains, and from the cellar penetrate the house. In the passage of illuminating gas through the soil, the odorous portion may be largely absorbed, rendering the contamination of the atmosphere more difficult to detect.

Detection of Carbon Monoxid.—Fresh blood exposed to the air and then examined by the spectroscope will show if carbon monoxid be present, the two characteristic absorption bands of carboxyhemoglobin; but these will not be altered when a reducing agent such as ammonium sulphid is added to the blood. In normal unexposed blood the reducing agent will change the double bands to a single intermediate one.

Many noxious substances are added to the air in the prosecution of various trades and manufactures. The vapor or solid particles of mercury, arsenic, phosphorus, zinc, lead, or other compounds, or certain acids are especially harmful. The presence of vapors from sulphuric acid in the air is comparatively harmless, but the vapors of fluorine, chlorine, bromine or iodine produce serious inflammations of exposed mucous membranes and the skin.

Mine Air.

Especially noxious is the air in mines, which is deficient in oxygen and contains an excessive amount of carbon dioxid, together with carbon monoxid, methane, hydrogen and hydrogen sulphid. The latter gases, together with the fine carbon dust in the air, are combustible, while methane constitutes the dreaded *fire-damp* that may lead to serious explosions. Should death not result from the explosion of the fire-damp, it may be caused by the deficiency of oxygen, and the presence of carbon monoxid and hydrogen sulphid in the "*after-damp*," "*Black-damp*," or "*choke-damp*," results from the slow oxidation of the carbon and hydrogen of coal by the oxygen in the air. It extinguishes fire and may lead to fatal asphyxia. Undiluted, it consists of nitrogen and carbon dioxid. Mine air is rendered respirable by the continuous employment of ventilating appliances.

Sewer Air.

In the decomposition of sewage, large quantities of carbon dioxid, with some marsh-gas, ammonium compounds, and hydrogen sulphid are given off. In unventilated cess-pools these gases, and especially the ammonium sulphid, are often

present in such large amounts as to jeopardize life, and it is the custom of workers before entering such pits to introduce lighted candles as a test of the ability of the contained air to sustain life. If the lamp is extinguished, the air is, of course, considered to be irrespirable. In the modern ventilated conduits and mains for sewage the air rarely contains sufficient carbon dioxid or other gases to be prejudicial to life. Carbon dioxid is usually present in from 10 to 50 volumes in 10,000, and in sewers without ventilation the quantity is, of course, much greater. Efficient ventilation of sewers rarely causes serious contamination of the external air, and it is preferable that the gases escape into the open air and be largely diluted, rather than be retained in the sewage system and by defective plumbing enter houses in considerable quantities. The experimental evidence as to the influence of this gas upon infection is contradictory. Moderate quantities of sewer air from a well-ventilated system are probably without appreciable effect, while larger quantities of this air but little diluted may depress resistance of the body and thereby favor the entrance and growth of morbid agents.

The pathological condition resulting from the inhalation of emanations from decomposing animal matter is termed *mephitism*.

Solid Particles in the Air.—Dust forms an essential but oftentimes harmful ingredient of the air. It is useful to the formation of clouds and mist and in regulating the precipitation of moisture. It consists of a multitude of organic and inorganic, animate and inanimate particles, the number being modified by the locality, the humidity, by winds, various industries and other agencies. Aitkin found from 8,000 to 100,000 dust particles in each cubic inch of air in the country, while there were 1,000,000 to 50,000,000 particles in city air. When the air contains large quantities of inorganic particles these may be deposited in the lungs with the production of pneumonokoniosis. The number of *bacteria* present in the air is subject to wide variations. At high altitudes and in mid-ocean, few or no bacteria are found. In general the number bears a direct relationship to population, overcrowding and lack of sanitation.

The following table from Miquel, quoted by Roger, illustrates the great variations in the number of bacteria found in different localities:

NUMBER OF BACTERIA FOUND IN A CUBIC METER OF AIR.

In the sea, at 100 kilometers from the coast	0.6
Altitude of 2,000 meters.....	3.
Summit of Pantheon.....	200.
Observatory of Montsouris.....	480.
Rivoli Street (in Paris).....	3,480.
New house.....	4,500.
The air of sewers of Paris.....	6,000.
Old house.....	36,000.
Hotel-dieu (hospital).....	40,000.
Pitie Hospital.....	79,000.

Fortunately, the most of these bacteria are molds or harmless micrococci. Rains, snow-storms and high degrees of humidity greatly reduce the number of bacteria in the air, and the

number is less at night than during the day, during the winter than the summer time. Through desiccation and the action of the sun's rays these floating microorganisms are constantly being destroyed.

Aerial Infection.—The early theories as to the method of disease transmission assumed the presence in the air of a vaporous principle or miasm, which rose from the earth or water, or was given off from the sick. We now know that the infectious diseases are not conveyed by gaseous principles. With the proof that malaria is transmitted by mosquitoes, the last of the so-called miasmatic diseases has passed out of the nomenclature, and it may be definitely said that the term miasm has only an historic place in scientific literature. The theory of infectious diseases attributing their origin to definite, organized particles, implies that the air must contain particles of a liquid mist or of dust in order to transmit these diseases.

Many experiments have shown that bacteria are not ordinarily given off to the air from moist surfaces. In exceptional cases by the action of violent winds, distinct particles of water with bacteria inclosed may be picked up and carried. In the vaporization of water, although the aqueous vapor may also immediately condense after entering the air, the definite interval in which it is in the form of a gas prevents it from carrying bacteria from the liquid. When, however, in fermenting liquids there is gaseous evolution, with rupture of bubbles upon the surface, minute particles of the liquid may be thrown into the air in the rupture of these bubbles. It has been assumed that in this way *sewer air* may be contaminated from sewage, but practically it is improbable that these particles remain in the air for a sufficient length of time to be an important factor in disease transmission. Their specific gravity causes them soon to fall again to the ground or to the surface of the liquid.

Moreover, sewer air contains comparatively small numbers of bacteria, and these usually differ in type from those predominant in the sewage, while men employed in sewage systems and breathing sewer air many hours daily, not infrequently exceed the average laborer in health and vigor.

From the moist surface of the respiratory tract of man and animals liquid particles are ejected by the acts of coughing, sneezing and speaking. The experiments of Flugge and others have shown that these particles remain suspended in the air for a distance of several meters (20 feet), and then rapidly subside by gravitation. As would be expected, greater numbers of watery particles are thrown off from those speaking the guttural tongues, and in coughing, while in ordinary, quiet respiration no bacteria seem to leave the mucous surfaces. Infection may thus be carried by particles of liquid, the air simply serving as the medium through which they are propelled. The number of diseases in which infection occurs in this manner is not great, the *tubercle bacillus* being

one of the most important organisms thus transmitted. *Diphtheria* has repeatedly been conveyed to physicians and nurses by the patients' coughing in their faces during the examination of the throat. As the cause of *scarlet fever* is known to be present in the saliva, this may also be transmitted in a similar manner, as may be the case with *pneumonia*, *influenza*, *measles* and *plague*. There is little reason to believe that such diseases as cholera, typhoid fever or yellow fever are often diffused in this way; and it is obvious that for the occurrence of this form of infection the exposed person must be in close proximity to the one affected.

This method of transmission is to be *avoided*; first, by care upon the part of the patient, who should place a handkerchief over the mouth during the act of coughing, and second, by care upon the part of those engaged in the examination of the throats of patients suffering from diphtheria or scarlet fever, who should use a glass screen or other protective device. As the saliva of most individuals contains pathogenic organisms, the present tendency of surgeons to avoid talking over the operative field, and to wear pieces of gauze or other material over the lower portion of the face, has a sound basis. The important matter is to know how long disease organisms may remain infective after having been thrown into the air. It is probable that tubercle bacilli, especially when inclosed in particles of sputum, may retain their virulence for months, as has been demonstrated experimentally by the infection of guinea-pigs with dust from rooms previously used by consumptives. The pyogenic cocci resist drying for a considerable time, and yet the fact that wound infection from the air by these organisms very rarely occurs shows that they must rapidly fall to the ground. The colon bacillus, and the organisms of typhoid fever and cholera, quickly die upon drying, and, therefore, require no special precautions to prevent their transmission through the air, except by insects or enclosed in liquid particles. Inoculation with the bacillus of typhoid fever from flying liquid particles has apparently occurred in the washing of clothes and in the performance of autopsies. As Jehle found the bacillus typhosus in the sputum of most patients with pneumonia complicating typhoid fever, care should be taken to prevent the diffusion of secretion from the respiratory tract in cases of typhoid fever associated with pulmonary exudation. *Dust particles* floating in the air contain many microorganisms, but these consist almost entirely of molds, yeasts and saprophytic cocci. It is only when there is quite a violent commotion of the air that pathogenic organisms seem to be carried in the dust, and then the fact that many organisms die upon thorough drying, reduces the liability of infection from such sources. The street dust of cities, laden as it often is with excrementitious particles from man and the lower animals, and carried by the wind into the eyes and upper respiratory passages of persons exposed, is probably the origin of many of the milder catarrhal

affections prevalent in the spring and fall, and may also be the origin of tuberculosis or other grave infection.

The important action of sunlight, and of fresh oxygen, as provided by thorough ventilation, in increasing the purity of air and reducing the danger of infection from this medium, is constantly to be borne in mind. Dependence should not be placed upon these natural methods, but sanitary rules should be enforced to limit the contamination of air.

ATMOSPHERIC PRESSURE.

At the sea-level the weight of the atmosphere is 1.03 kilos to each square centimeter, or 14.64 pounds to the square inch. This is equivalent to a barometric height of 760 millimeters, or 29.92 inches, at the freezing point. The human body sustains under these conditions a total pressure of about 18,000 kilos, or 39,683 pounds. The balance between the pressure within the body and that from without permits the support of this vast weight without discomfort. Changes in the external pressure, especially when occurring so rapidly as to interfere with the normal pressure equilibrium, may be followed by symptoms, as exemplified in *barometric neurosis* and *caisson disease*.

Natural barometric fluctuations result from difference in altitude, temperature, humidity and winds. They may be periodic, as are the *diurnal* and *annual variations*, or non-periodic, as are the *cyclonic* and *anti-cyclonic variations*.

Increased Atmospheric Pressure.

A marked increase in the atmospheric pressure, especially if frequently repeated, often produces bleeding from the nose, ears and other mucous membranes, delirium, and forms of paralysis. Degenerations in the central nervous system and vacuolations in the spinal cord have been found. The symptoms appear upon the rapid return to the normal pressure, and the vacuolations have been attributed to the sudden expansion of condensed gases contained in the nerve-tissues. The group of symptoms produced by increased atmospheric pressure has been termed *caisson disease*, as it especially occurs in those working in caissons, and in divers. The condition may be prevented by avoiding sudden changes in the atmospheric pressure. Workers in the caissons should spend at least five minutes in an intermediate chamber, for each six pounds change in pressure, both on entering the caisson and upon leaving it.

Decreased Atmospheric Pressure.

Dyspnea and nervous excitement, faintness, cyanosis, hemorrhage and vomiting may develop when high altitudes are reached. These symptoms occur in mountain climbers and balloonists. There is in the blood a decided increase in the number of red blood corpuscles, followed by an increase in specific gravity and hemoglobin. Sim-

ilar conditions may be produced by placing animals in chambers from which the air is partially expelled. A return to the normal barometric pressure (760 mm.) causes a transient decrease followed by an increase of the red cells over the number present previous to the experiment. Ossian, Schaumann and Rosenquest found that the microcytes were diminished, the macrocytes increased, and the cells of average size unchanged in number. There was a slight increase in the number of nucleated cells, and in pigeons mitotic figures occurred in the red cells. These changes were found in the blood from the liver, aorta and skin, and suggested to these observers that there was a true proliferation of the blood-cells. The increase of hemoglobin was not proportionate to that of the number of erythrocytes.

Mountain Sickness.—This may occur at a height of 3,000 meters (9,750 feet), but is most common at 4,000 meters, especially when associated with cold. Thus, the ascent of mountains with a high zone of perpetual snow, like the Andes, Rockies and Himalayas, less often produces mountain sickness than does the ascent of mountains in which the snow line is lower, as the Alps. It is more common when the ascent is made rapidly by unaccustomed climbers, who become over-fatigued. Fatigue, while an intensifying factor, is not essential, as mountain sickness occurs in aeronauts and in those who ascend Pike's Peak by train. Pains in the legs, salivation, nausea, vomiting and even tormina and diarrhea may develop. The respirations are accelerated, the pulse is rapid and feeble, the surface becomes cold and clammy. Vertigo, headache, and finally apathy and an almost irresistible tendency to sleep may develop. The experiments of Paul Bert indicate that it is not the mere rarefaction, but the diminution in the oxygen of the air, that is the cause of the disease. At high altitudes the diminution in temperature adds to the injurious effects from the lack of oxygen.

WATER.

Water may become a factor in the production of disease when it contains harmful amounts of mineral matter, toxic organic compounds, or serves to convey pathogenic organisms to the body. Gout, rheumatism, myxedema and other disorders have been attributed to mineral matters contained in drinking water, but the relationship of these disorders to the water has not been clearly proven.

Injurious quantities of inorganic or organic matter in water may easily be determined by comparatively simple tests, and may be avoided by careful selection of sources of water supply and the method of distribution. More important is the relationship of water to the dissemination of organisms capable of exciting disease.

The Contamination of Drinking Water.

The chief infections believed to be transmitted by drinking water are *typhoid fever* and *cholera*.

The organisms of both these diseases have been demonstrated in waters used for drinking, and their relationship to epidemics clearly proved. It is, nevertheless, probable that the importance of water as a means of transmission has been over-rated in both instances; for the organisms are often destroyed in time by natural factors constantly at work in most waters. These factors are: first, the small amount in many waters of sufficient organic matter to serve as food for the bacteria; second, the action of sunlight; and third, the antagonistic effect of many harmless microorganisms indigenous in many waters. There is little reason to believe that pathogenic organisms usually multiply to any degree after gaining entrance to most of the potable waters, but it is possible that water may be consumed at such an early period after its contamination that the infectious agents have not yet been killed. They may be carried by water through the earth for a considerable distance, although the natural filtering properties of soil tend to reduce the number of bacteria so carried. As is well known, the deposition of *fecal matter* in close proximity to sources of water-supply may be the means of infection, as was strikingly shown in the typhoid epidemic at Plymouth, Pa., in 1885.

Drinking water may be contaminated from *urine* alone, as was apparently shown by Kubler and Neufeld, who isolated typhoid organisms from a well of water that had caused a small outbreak of typhoid fever. The urine of a typhoid patient had been emptied near the well, and as no colon bacilli were found in the water, it seemed probable that the contamination was not of fecal origin.

Infection Through Water in Bathing and in Washing Clothes or Utensils.

In *bathing* water may enter the various openings of the body. As public baths are often frequented by large numbers of people suffering from various diseases, infection is quite possible, especially if the water be infrequently changed. The affections likely to be transmitted are the various forms of acute inflammations of mucous membranes, as *conjunctivitis*, *rhinitis*, *pharyngitis* and *laryngitis*. There is little positive evidence that venereal disease may be conveyed in this manner. Impure water used for the purpose of bathing may also bring in contact with the skin microorganisms that penetrate it and thus find their way into the blood and deeper tissues. While this occurrence may be rare, its reality is suggested by the experience of A. Looss, at Cairo, who observed that when he allowed water containing the embryos of *Uncinaria duodenalis* to dry upon the skin of his hands, an itching sensation occurred at the point of contact, and apparently as a result, he became infected with parasites whose eggs he subsequently discovered in his stools. He was able later to make an actual demonstration of the penetration of the skin of a cadaver by the larvæ of these parasites, and concludes that this is the usual method by which

they enter the human body. *Washerwomen* are exposed to various infections in the process of rubbing infectious clothes, for foamy particles are thrown into the air, and frequently alight on the face, in the nostrils or mouth. If the microorganisms have sufficient virulence, and have not been destroyed by the action of the heat of the water or the soap, infection may occur. Occasionally infections of *diphtheria*, *scarlet fever* and *typhoid fever* seem to have occurred in this way.

Infected water is frequently used to *wash utensils*, and in this way milk, uncooked vegetables, and other foods may be contaminated. Milk is an excellent culture-medium for most pathogenic organisms, and epidemics may be due to contamination occurring in this way.

Infection Through Water Introduced Within the Tissues.

Virulent pus-producing organisms are rarely numerous in the general water supply, and thus operative infections are due chiefly to infected utensils, hands, or other materials. In certain German cities, although the number of saprophytic organisms in the water is quite large, it has been found safe to use water from the general water supply for operative purposes without sterilization; but as there seems always to be a possibility of infection occurring through this medium, few surgeons are willing to take the risk of using unsterilized water. Muddy water may contain certain of the virulent organisms found in earth, such as the *tetanus bacillus* and the bacillus of *malignant edema*, and Hirst has reported cases of puerperal tetanus in which infection seemed to result from intrauterine douches of such water, to which creolin, an unreliable germicide, has been added.

SOIL.

The soil serves as one of the great laboratories of Nature. Here organic matter is reduced to simple inorganic compounds that by a union with the elements, oxygen and nitrogen, are changed into more elaborate compounds, serving as food for plants. In the soil water is impregnated with soluble mineral constituents, with gases and at times with organisms capable of exciting disease. From the soil gases and aqueous vapor are given off to the surrounding air, while temperature variations in the adjacent air are modified. Important factors are the porosity, the ground water level and the amount of organic decomposition occurring in the soil. Very damp soils, those with a constant high ground water level, those that are relatively impervious and those containing large amounts of decomposing organic matter are unhealthful.

Infection from soil has been attributed (1) to *gaseous* or *miasmatic emanations*, (2) to the *ground* or *soil air*, (3) to the ground water, and (4) to *materies morbi* contained within the soil itself.

Ground Air.

Ground air, or the gas contained within the interstices of the soil, is usually richer in carbon dioxide than ordinary air, and may also contain ammonia, ammonium sulphid, hydrogen sulphid, and other gases derived from the decomposition of animal or vegetable substances. Its humidity is usually high. That gaseous emanations from soil contain infectious principles is an ancient supposition that has not been confirmed by exact investigations. Although the ascent into houses of ground air with its excessive humidity, small percentage of oxygen, and excess of gases arising from organic decomposition may be undesirable, may render them damp, unwholesome and favor the multiplication of molds and bacteria, it cannot be directly credited with producing specific diseases. Care should be taken that the ground air about dwellings is not contaminated from leaky drains and cess-pools, or from decomposing organized matter; not because these contaminations directly produce disease, but because such unwholesome surroundings tend to depress the normal immunity of the body and to favor bacterial invasion.

Ground Water.

Soils vary in their capacity for absorbing and retaining moisture; humus having marked retaining power, and chalk, loose sand and gravel having much less. Much depends, however, upon the permeability of the subsoil, the declivity, and the protection afforded by surface vegetation. Not only is the soil kept moist through rains, but by capillary attraction water is constantly rising from subterranean sources. The subsoil water is subject to movements that occur at different depths in various soils, varying from two feet to several hundred feet from the surface. Pettenkofer and his pupils have affirmed the close relationship of soil water with such diseases as *cholera* and *typhoid fever*, but the claim that there is a constant and direct relation between the condition of the soil and the occurrence of epidemics is obviously erroneous. The danger from soil water lies in its ability to transmit pathogenic bacteria to soils and sources of water supply, and to maintain an unwholesome dampness in houses. The soil, however, acts as a bacterial filter, reducing the number of bacteria that pass through it for long distances, so that the possibilities for a wide dissemination of disease, except through subterranean streams, by ground water are too slight to be considered. Through short distances, as a few feet, or possibly a few yards of space, bacterial conveyance may occur, and Dempster has shown that cholera spirilla may be carried through two and a half feet of porous soil by currents of water. Fortunately, many pathogenic bacteria are unable to live for long periods of time in soil. An indirect relation between soil water and certain diseases does, however, occur. Malaria is associated with marshy soils, because they are suitable for the propagation of mosquitoes.

Chronic rheumatism is known to be favored by dampness of the soil, probably merely because it renders the atmosphere cold; although the probability of infectious agents being demonstrated for the so-called rheumatic affections must not be overlooked. A few diseases like *goiter*, *calculus* and *myxedema* have been attributed to certain mineral constituents entering drinking water from the soil; but the relationship is too inconstant and variable to warrant the conclusion. Haviland, especially, has studied the geographic distribution of *cancer*, and believes the affection to be much less frequent in elevated places and districts of limestone formation, and most frequent in floody, low-lying clayey areas. Assuming that carcinoma is due to a parasite, he suggests that the moist soils, especially of alluvial earth, favor the development of microorganisms. Cancer, however, is known to prevail upon elevated and dry lands; and when d'Arcy Powers sowed land, apparently complying with the requirements of Haviland, with bits of carcinomatous tissue, the results were negative in the exposed animals. Epidemics of *diarrhea* have been attributed to the moisture, heat, or uncleanness of soils. Ballane says that excessive wetness or complete dryness are unfavorable to the prevalence of diarrhea. As asserted years ago by Bowditch, the development of pulmonary phthisis is favored by low-lying, damp soils, which are found also to predispose to colds and catarrhs of the respiratory tract.

Bacterial Contamination of Soil.

In portions of the New Hebrides the soil is so rich in the bacilli of *tetanus* and *malignant edema* that the natives employ it as an arrow poison. Garden earth is known to contain these organisms frequently, not, however, in large numbers, as a rule, nor do the organisms appear to undergo any considerable multiplication in the soil. When, under certain conditions, portions of such infected soil enter deep or punctured wounds, tetanus results. Nearly all other pathogenic organisms rapidly die in ordinary soil, especially if it be dry. In *damp soils* the organisms of *cholera*, *typhoid fever* and *plague* may live a number of weeks or months. In the damp dirt floors of Chinese and Japanese dwellings that are protected from the action of the sunlight, the bacilli of plague have been found months after the disease has occurred in the house. Rats and other vermin may acquire infection from such contaminated soil and may then transmit the disease to the human family.

Infection from the Buried Animal Body.

Pasteur believed that earth worms conveyed the bacillus of *anthrax* from the buried animal body to the surface and led to the infection of grazing cattle, but later experiments tend to disprove this supposition.

Although the chemical study of the *water* yielded by wells and springs in the neighborhood of

cemeteries has shown that such water may contain abundant dead organic material in solution, bacteriologic investigations have failed to bring forward conclusive evidence that pathogenic organisms are transmitted from buried bodies through the ground water, to distant sources of water-supply. Experiments in this respect have been conducted by Klein, Petri, Yokote, and others. Klein found that disintegration of the animal body after burial is chiefly brought about by an anaerobic bacterium that he terms the *Bacillus cadaveris saprogenes*. The pathogenic bacteria seem to play but a small part in the dissolution process and are soon destroyed. Experimenting with the bodies of guinea-pigs infected by various pathogenic organisms, it was found that none of the latter were capable of maintaining vitality for more than a few weeks after burial. No matter whether the body was incased in a coffin, or wrapped in a piece of fabric, or buried directly in the earth or in sand. The soil adjacent to the buried body was free from pathogenic bacteria. It is inferred that the vitality and infectiousness of pathogenic organisms contained in the viscera disappear long before the outer skin has become permeable to them. Yokote using the bodies of mice killed by plague obtained similar results.

Koch has shown that the bacillus of anthrax and other pathogenic bacteria can be grown in sterilized but not in unsterilized soil. Wilson has examined graveyard soils and bits of old coffins without finding pathogenic organisms. The rapidity of the destructive action of soil upon bacteria varies decidedly, peat being especially rapid in its action, and is to be attributed to the character and number of the contained saprophytic microorganisms.

There is, therefore, no bacteriologic evidence that properly placed and conducted cemeteries are a menace to the adjacent neighborhood. It is conceivable, however, that infection might follow interment with access to subterranean streams. Interment should only be made in porous soils that have a low ground water level, and to facilitate rapid decomposition impervious caskets or graves lined by masonry should be avoided.

CLIMATE AND SEASON.

The principal features that produce and modify the climate of a place are its latitude, altitude, proximity to bodies of water, and the prevalent winds and rains. Besides this, climate may be modified by the topography of the land and the character of the soil. The human body has a remarkable ability to adapt itself to different climates, and with proper food, clothing, exercise, and the avoidance of the parasitic causes of disease, the climate has a minor effect upon the health, except in cases of the weakly or diseased. It is customary to classify climates into *warm*, including the *equatorial*, *tropic* and *subtropic*; *temperate*, with a mean temperature of 60° F.;

and *cold*; also into *plain*, *mountain* and *marine* climates.

Climate is not an exciting cause of disease, yet by its favoring or inhibiting influence upon the determining factors it may play a somewhat important part in disease production or prevention. Thus, warm, moist climates are favorable to the growth of parasites, and the parasitic diseases are especially common in the tropics. Gastrointestinal disturbances, cholera, yellow fever, and malaria are also prevalent, measles and scarlet fever comparatively rare, in hot climates. Pulmonary tuberculosis is observed more frequently in moist than in dry regions, at the sea-level than at altitudes; while rheumatism, gout and pneumonia are more frequent in cold, damp climates. Marine climates predispose to rheumatism and pulmonary affections and aggravate existing neuralgias. When we except certain affections like heat-stroke and frost-bite, it will be evident that climate does not act except as a predisposing cause of disease, and with a better understanding of the parasitic nature of disease, the importance of climate as a causal factor has greatly depreciated.

The slight influence of climate on the development of disease is well illustrated in the recent experiments as to the production of malaria upon the Roman Campagna. In a place noted for its unwholesome, malarious climate, a number of observers lived in perfect health for months, merely by taking precautions to avoid mosquito bites. As a therapeutic agent, however, climate is often of great value.

Vegetation.—The presence of many trees in a district has an important regulating effect upon the climate. By their presence the winds are modified, the temperature is made more equable, the air is rendered more uniformly humid, there is a diminution of dust, while certain gases believed to be healthful may be given off by the trees. The danger from foods is much less in woody districts, as the trees serve to regulate the penetration of water into the soil.

SEASON.

Variations in temperature and humidity accompanying changes in season are associated with variations in the incidence of certain diseases that are analogous to the incidence of the diseases in relation to climate. During the summer months gastro-intestinal maladies are prevalent and the tropic diseases make the greatest incursions into the temperate zones.

This is usually due to the fact that all causal conditions are favorable only during these months. Thus, yellow fever is confined to the warm months in temperate climates, for the reason that the contaminating mosquito is active only in warm weather. Probably for a similar reason cholera occurs chiefly in the months of August, September and October. The prevalence of the gastrointestinal disorders of childhood, such as cholera morbus, cholera infantum and other forms of enterocolitis, is greatest during July and August, a

period in which it is most difficult to properly preserve foods used for infant feeding. During the cold, damp months catarrhal affections, pneumonia, rheumatism and gout are most frequent. This is explained not only by the increased exposure and chilling of the body, but also by the less hygienic method of living, persons being disposed to spend more of their time in overheated and poorly ventilated rooms and to indulge more in overeating and overdrinking than during other seasons of the year. The acute exanthemata are more prevalent during the autumn and winter, the propagation of the infection being favored at this time by the tendency of people to collect in schools and halls. Typhoid fever and malaria are more widespread during August, September and October than in other months. This is probably due to the activity of the insects transmitting these diseases during the late summer. The fall rains may aid by sweeping infectious material into the wells and streams from which drinking water is taken. Diphtheria, measles, scarlatina and small-pox are most prevalent during the cold months. This may be due to the greater facilities for infection during the winter time afforded by crowded and poorly ventilated cars, houses or public meeting-places. We have no good reason for assuming that season alone is the direct causal agent in facilitating the propagation or invasion of the exciting agent.

Excessive dryness or moisture may increase the morbidity during any season. This is apparently well shown in relation to autumnal diarrheas in the following table:

RELATION OF AUTUMNAL DIARRHEA TO
RAINFALL.—(Hope.)

Average Rainfall June to September.	Annual Average of Deaths from Diarrhea in the Third Quarter of the Year.
Average of 6 wet summers. .13.8	373
Average of 14 dry summers. .10.9	573
Extreme wet summer, 1891. .16.0	203
Extreme dry summer, 1895. .7.7	819

CHAPTER V.

THE EXTRINSIC FACTORS OF DISEASE. PHYSICAL—TOXIC.

TOXIC FACTORS IN DISEASE.

Poisons are substances that in small amounts interfere with the functional and structural integrity of the organism. They may be *ectogenous*, or arise without the body, or they may be formed, as are leucomains, within the body, and therefore be *endogenous*. Endogenous poison result from the immediate or remote action of an exogenous cause. Thus, a substance may be toxic because when introduced into the body it liberates endogenous poisons from the cells. Poisons may show their predominant action locally upon the tissues with which they first come in contact; or in passing through the body they may cause marked degenerative changes in the parenchyma of organs;

or they may alter the character of the blood, or show their chief action upon the nervous system. As a general rule, the most marked lesions are found at points of entrance and exit from the body—where the greatest concentration usually occurs—or in cells especially vulnerable, as those of the central nervous system.

Local Poisons.—The chief inorganic local poisons are the caustic acids, alkalis, and certain salts of the heavy metals, especially of mercury, zinc, silver and antimony. These produce marked chemical changes in the tissues, leading to their death, with protoplasmic coagulation or solution. There are also certain *vegetable* and *animal* products that produce marked toxic action when locally applied. Croton oil produces an erythema followed by vesiculation and pustulation, and poison ivy and poison oak, in susceptible individuals, cause marked hyperemia and the formation of large bullæ. Pfaff found in both *Rhus toxicodendron* and *Rhus venenata* an oil he termed *toxicodendrol*, the application of 0.001 milligram of which, dissolved and mixed with two drops of olive oil, gave rise to intense local irritation in a susceptible subject. In the lower animals these drugs produce generalized fatty degeneration. Many animals elaborate poisons having a local as well as a general action. The venom of serpents and lizards (Gila monster), the cutaneous secretion of toads and salamanders, the poison of arachnids, myriapods and insects, the salivary secretion of mosquitoes and cantharidin derived from certain beetles are example of these toxic substances.

Parenchyma Poisons.—Many poisons having a marked local action, such as the mineral acids and alkalis, are practically harmless when diluted. Their effects, therefore, are only found locally. Other substances as phosphorous, arsenic, antimony, mercury and many of the animal and vegetable poisons, not only produce local lesions, but when absorbed even in dilution cause a high-grade parenchymatous, fatty or other degenerative change, especially in the liver, kidneys, heart, blood-vessels and muscles. With these drugs it becomes important not only to control the local effects, but also to prevent their absorption. Protoplasmic metabolism or muscular contractility may be stimulated, depressed, or abolished. Other poisons, as alcohol and lead, as well as those present in the body in syphilis and of gout, stimulate the interstitial tissues to harmful overgrowth, thus causing the various *cirrroses* or *scleroses*.

Blood Poisons.—These act by (1) forming more stable combinations with the hemoglobin, thereby preventing the ordinary oxygen-carrying function of the blood, (2) by causing a solution of the corpuscles, and (3) by inducing changes in the plasma, interfering with its coagulation.

The combination most frequently formed with the hemoglobin is called *methemoglobin*. It is isomeric with the normal oxyhemoglobin, but is so stable that the oxygen is not liberated for the use of the tissues. It gives the blood a sepia-brown color. The formation of methemoglobin is often accompanied by the solution of the cor-

puscles (hemolysis). This change is produced by many of the newer coal-tar remedies, such as acetanilid, phenacetin, trional, and also by chloral, chloroform, amyl nitrite, etc., potassium chlorate, pyrogallol, dinitrobenzene, nitroglycerin. The inhalation of carbon monoxid even in so small a proportion as 0.02 per cent. is injurious. *Cyan-hemoglobin* results from the toxic action of hydrocyanic acid, and it gives the blood a bright red color. From the inhalation of hydrogen sulphid, *sulphur-methemoglobin* may be formed. Hydrogen arsenid, potassium chlorate, serpents' venom, phallin from poisonous mushrooms, other poisons and the various hemolysins have a marked solvent action upon the corpuscles.

Many poisons, including ricin, abrin, alcohol, ether, and the blood serum from a different species of animal, will coagulate the blood.

It is rare that a poison acts solely upon the blood. Usually there is also an injurious action upon visceral protoplasm, especially that of the central nervous system.

Nerve Poisons.—These may have a predominant action upon the cerebral cortex, the basal ganglia and spinal centres, or the peripheral nerves. Certain poisons, as chloroform, ether, chloral, coniin, diphtheria toxin, and the bromids, chiefly depress, while others, as strychnin, tetanus toxin, caffein, cocain, chiefly stimulate nervous excitability. The toxic substance may show a selective action upon certain centers, nerves, or ganglia, as is exemplified in the depression of the motor centers of the cord by physostigm, and the stimulation of the vagi by digitalis.

Prophylaxis.—Against the mineral poisons we have a series of chemical antidotes, against those of vegetable origin a limited number of imperfect physiologic antidotes, while against many of the venoms and bacterial toxins, efficient antisera have been developed. Obviously, it is of first importance that the poison be prevented from entering the body, and second, that should it enter, the appropriate antidote be administered before serious cellular changes have occurred.

VENOMS.

Certain animals, as the *Gila monster* of Texas and Central America, secrete a poisonous saliva. Bites of the *salamander*, *toad* and *triton* and the bites or stings of certain *fish* are followed by phlegmonous and gangrenous inflammations. Many of the *spiders* inflict bites that are poisonous, the bite of the tarantula of tropic countries being especially serious. Of the *myriapods*, the centipede and scorpion cause painful and at times serious bites. The effects of the stings of insects are well known. In a number of recorded instances the sting of a single bee, hornet, or wasp has resulted in death. Less serious are the bites of certain other insects, as mosquitoes, flies, bedbugs, fleas and ants.

The most important venoms are those secreted by the snakes. All snakes possess poison glands, but in the majority these are rudimentary or are

without outlet. In North America there are but four *venomous snakes*. Three of these, the *rattlesnake* (genus *Crotalus* and *Sistrurus*), the *copperhead* (*Ancistrodon contortrix*), the water moccasin or "*cotton mouth*" (*Ancistrodon piscivorus*), distinguished by a deep depression between the mouth and eye, belong to the pit vipers family, Crotalidæ. The *coral snakes* belong to the family Elapidæ. They are very venomous, although usually described as amiable in disposition. The rattlesnake rarely bites except under provocation, but the copperhead and the moccasin are more aggressive. Other venomous serpents are the *cobra* (*Naji naja*), chiefly found in India, the most venomous of serpents; the deadly West Indian "*fer de lance*" (*Bothrops lanceolatus*); the *vipers* of Europe, the bites from which rarely cause death in adults; the Egyptian asp (*Naja haje*) and the *Cerastes* (*Vipera hasselquisti*), reputed cause of Cleopatra's death. In India about 20,000 people die annually from snake bites, chiefly from that of the cobra. Snake venoms have been studied by Weir Mitchell and Reichert, Calmette, Phisalix and Bertrand, Fraser and others. They contain toxic globulins, albumoses, and peptones—compounds that may produce marked local lesions, characterized by great edema, and at times gangrene, serious blood changes, and profound depression of the nervous centers, leading to convulsions or paralysis. Death usually results from progressive respiratory failure. If recovery takes place, the cicatrix may in certain cases annually become painful and ulcerate.

The results of snake bite vary with the species of snake, the amount of venom injected, the situation of the bite, and the size and general resistance of the person bitten. Thus, the bite of a cobra, into a vein or artery, has been followed by death in two minutes, and in general about 40 per cent. of all cobra bites are fatal. About 6 per cent. of rattlesnake bites are fatal, Mitchell and Reichert mentioning one case of death within 40 minutes. The harlequin or other variety of the coral snakes rarely bites, but ensuing unconsciousness and death have been recorded in a few instances. Moccasin bites are occasionally fatal, the bite of the copperhead rarely so. It is unusual for the bite of the viper to be lethal except in the case of the feeble or in children. Most dangerous are bites in the very vascular portions of the body, especially by snakes of large size, that are fasting and have not recently discharged their venom, less serious are bites into adipose tissue.

Prophylaxis.—The effects of snake bite should be combated: (1) by localizing the poisons by tying a tight band around the limb above the bite and removing as much of the poison as possible by incision or excision and suction; (2) the poison bites, according to Calmette, should be treated by hypodermic injections of substances that locally neutralize the venom, as calcium and sodium hydrochloride, gold chlorid, or potassium permanganate; (3) most efficient is the use of *antivenene*, the value of which has been worked out by Fraser, Phisalix, Bertrand and Calmette. This antidotal serum is obtained from horses that have

been immunized by progressively increasing doses of venom. Antivenene of one snake-venom is also efficient against other forms; that prepared from the rattlesnake protecting against the cobra, and vice versa, as shown by McFarland. Antivenene is a perfect antidote, provided it can be injected before serious injury has been done to the central nervous system. If, in biting, the hollow fang of the serpent penetrates a blood-vessel so that the venom is thrown directly into the circulating blood, death may occur before the antidote can be introduced. As a rule, however, as has been shown in the French troops of Madagascar, injection of antivenene made within one-half hour of the bite of the more venomous serpents is usually efficient. Venoms are not injurious when swallowed unless they come in contact with broken mucous membranes. They are usually destroyed by high temperatures. Owing to its depressing effect upon the respiration, alcohol is contraindicated. In certain reported cases its use may have determined the fatal issue. Respiratory stimulants such as strychnine, atropine and caffeine may be judiciously administered.

Food Poisoning.

Besides the injurious effects resulting from its excess or deficiency, food may possess unwholesome qualities from improper selection, age, growth, season or environment, from disease, from decomposition, and from contamination with vegetable and animal parasites.

Animal Foods.—The meat of embryo calves and of pregnant animals is considered unfit for food. The flesh of animals that are fed upon certain substances may be toxic, as is that of birds that have eaten mountain laurel. Season may affect the wholesomeness of animal foods; for instance, the flesh of certain fish is toxic in the spawning period. Fish or shellfish may acquire toxic substances through living in certain waters. Schmitzmann found that oysters placed in the water of the harbor at Wilhelmshaven soon became poisonous, while the poisonous bivalves from this bay lost their toxic properties when placed in the open sea. As Lindener found that the filtered water from this bay did not render the oysters toxic, it would seem that the process was one of infection rather than impregnation by a poisonous substance. These oysters produce disease characterized by paralytic symptoms, and from them Brieger has isolated a ptomain that he calls *mytilotoxin*. Animals are subject to a number of diseases that may be transferred to man in food, including *tuberculosis*, *helminthiasis* and *anthrax*. The danger of contracting parasitic diseases is obviated by thorough cooking and careful meat inspection. The flesh from animals affected with tuberculosis, anthrax, glanders, actinomycosis, hog cholera, or with *animal parasites* should never be used for human consumption, no matter how localized the lesion.

Decomposition of food may result in the formation of toxic ptomains, such as the *tyrotoxin* of milk and cheese. *Botulismus* (*allantiasis* or *saus-*

age poisoning) may be acquired from improperly preserved sausage, bacon, chicken, ham and other meats. Ermengen has isolated from toxic meat and from the spleen of a person dead of the disease an anaerobic bacillus, the *Bacillus botulinus*, that elaborates a powerful toxin.

Other outbreaks of disease characterized by vomiting, diarrhea and collapse, and attributable to the ingestion of meat are apparently due to the *Bacillus enteritidis* of Gartner—an organism resembling those of the colon group.

Vegetable Foods.—Abnormal methods of growth may cause the production of injurious combinations in the metabolism of plants. Vegetables or fruits raised out of season or by unnatural forcing processes are usually less nutritious and more apt to cause gastro-intestinal disturbances than those grown under normal conditions. Food-plants are sometimes attacked by certain fungi, as the *ergot* of rye (spurred rye) and *blight* of corn. Grave pathologic changes may follow the ingestion of such diseased cereals. Food inspection and the penalizing of traffic in unwholesome food will limit their injurious effects.

Ptomains.

In the bacterial decomposition of animal or vegetable proteids, crystallizable basic compounds resembling the alkaloids are produced, that are termed ptomains. A few of these are distinctly toxic, while many are not poisonous. Their properties seem to depend in part upon the micro-organism and in part upon the nature of the proteid decomposed. Thus, neurin is produced by putrefaction from meat; ethylendiamin, from the flesh of fish; mytilotoxin, from poisonous mussels; tyrotoxin, from ice cream, milk and cheese, while cedavarin and putrescin may be developed in the putrefaction of the flesh of both mammals and fish. Muscarin is the active principle of poisonous mushrooms, but also develops in decomposing human viscera and fish. The rule has been formulated that the toxicity of putrefactive products is in direct ratio with the complexity of the substance involved. Thus, those produced in the decomposition of vegetables are apt to be much less toxic than those found in the putrefaction of flesh.

It is noteworthy that in most of the instances of ptomain poisoning cited, the food responsible, while perhaps changed in character, was not clearly putrid. Moreover, the use of gamy flesh by epicures, of rotting meat by savages and the lower animals does not seem to produce disease poisoning. It is probable that many so-called cases of ptomain poisoning are, in reality, the result of true infections or result from the ingestion of bacterial toxins. In any case the recorded instances of poisoning from oysters, fish, veal, beef, pork, milk and other foods, used either raw, cooked, canned or pickled emphasize the necessity for great care in the selection and preservation of food. As some of these poisons withstand high temperatures, cooking is an uncertain safeguard.

CHAPTER VI.

EXTRINSIC FACTORS OF DISEASE.

SOCIOLOGIC.

Food Preservatives.

Within recent years there has been an increasing tendency to resort to such chemicals as salicylic, benzoic or boric acids; borax, sodium sulphite and bisulphite and formaldehyde to preserve or improve the appearance of meats, milk, butter and vegetables. All of these substances have shown a more or less injurious action upon the body, inhibiting digestive processes or directly injuring the blood or tissues. Edibles canned in tin may contain tin salts, or, what is more serious, traces of lead from the solder used. Unless a good solvent for lead be present, the amount contained by the food will not be sufficient to be harmful. When the tin consists of an alloy of lead and tin (terneplate) or when food is wrapped in lead foil or kept in pewter receptacles, an injurious lead contamination may occur. The use of chemical preservatives in food is to be prevented by stringent legal enactment.

CHAPTER VI.

SOCIOLOGIC CAUSES.

Density of Population.

The crowding together of large numbers of people in limited areas is usually a result of poverty, and, as a rule, indicates that the individuals involved are less capable of successful existence than those living in more commodious quarters. It, therefore, follows that crowded areas usually show a high proportion of persons with deficient resistance, of unclean habits, with insufficient or improper nourishment, undesirable occupations and a general lack of care in guarding their bodies against unfavorable influences. Such associations conduce to defective ventilation, improper food, and unhygienic surroundings, and, of course, strongly tend to the development of deficient stamina, and the propagation of various diseases that are likely to spread to those in better circumstances. As expressed by Cohen, "The miseries of Lazarus are visited upon the children of Dives." It is, therefore, not strange that overcrowding is associated with increased rates of morbidity and mortality.

The diseases especially prevalent in areas of dense population are *tuberculosis*, the *acute exanthemata*, and the gastro-intestinal disorders of childhood. It is evident that overpopulation is not of itself the cause of the prevalence of these disorders, but rather that they result from the unhygienic conditions that are usually associated therewith. For this reason there are occasional marked exceptions to the rule that overcrowding is associated with a high mortality.

Not alone are diseases spread by over population but vicious and immoral habits are propagated and tend to injure the entire community. With especial force do these pernicious influences affect children exposed to slum or tenement life. From its influence, therefore, upon the physical and moral health alone, such overcrowding should not be permitted. No city can afford to foster mental and physical degradation by permitting slum life. Tenement life is permissible only under such model conditions as have recently been introduced in a few of the larger American cities. Sunlight, fresh air and play grounds must be supplied, dwellings must be of approved construction and the segregation of the vicious and immoral from the upright poor maintained if our civilization is to persist. In asylums, hospitals, dormitories and especially in the massing of large bodies of soldiers in barracks or on the field the evil effects of overcrowding are too apparent and are to be combated by recourse to the approved rules of civic and military hygiene, embracing care as to dirt, ventilation, exercise, cleanliness and moral oversight.

Dissipation.

Health is maintained without effort only when there is a proper regulation of the food-supply and an absence of abnormal stimulation or sedation of function. Gluttony, sexual erethism, or the abuse of stimulants and narcotics, is a constant menace to the health equilibrium. Not only do such excesses lead frequently to functional and structural abnormalities, but they also tend to increase susceptibility to various pathologic processes. Animals exposed to excesses in physical exercises more readily contract infectious diseases, and the administration of alcoholic beverages may also alter their natural immunity. Abbott's observations of rabbits, and especially the elaborate experiments of Dr. Taavilaitmen, apparently show that in dogs, rabbits, guinea-pigs, fowls and pigeons, alcohol distinctly increases the susceptibility to experimental infection. This diminished resistance results, no matter whether the alcohol is given before, during or after the time of inoculation, or administered by the mouth or under the skin. Careful control experiments showed that no temperature changes resulted in the animals, except a reduction after excessive doses of alcohol. In the infected animals, that are given alcohol, the abnormal temperature of experimental disease persists longer than in infected animals that do not receive the drug.

The experimental evidence that alcohol increases the susceptibility to infection is strongly corroborated by clinical observation. Of 2192 persons with tuberculosis studied by Lancereaux over one-half were confirmed drinkers. The habitual use of essences, including absinthe and the like, seemed especially to predispose to phthisis. Pneumonia, tuberculosis, enteric fever and other infections usually run a more severe course in alcoholics, and the frequency with which in the dissipated relatively slight injuries develop grave

local and general septic manifestations has been repeatedly noted by surgeons. Not only is there a condition of depraved tissue nutrition in those who use alcohol to excess, but the power of assimilation of food is much reduced.

Moreover, alcohol is *directly toxic*. The ingestion of from 500 to 1000 c.c. of whiskey (from one to two pints) at one time by an adult has repeatedly resulted in death within a short time, while much smaller quantities have proved fatal in children.

Spirituous beverages may contain besides ethylic alcohol, more toxic substances, such as propyllic, butylic and anylic alcohol, acetone and various aldehydes, ethers and essential oils. The bitters, cocktails, and other so-called mixed drinks may contain a number of these toxic substances. Absinthe is said to contain nine toxic essences. Certain artificial flavors are poisonous or may accidentally be contaminated. Malt liquors are also subject to intentional and accidental adulteration with poisonous substances. Thus, *Cocculus indicus* has been used to fortify beer, and the widespread epidemic of arsenic poisoning in Birmingham during 1900 and 1901 was traced to beer containing glucose manufactured with sulphuric acid contaminated by that metal. Lead poisoning has also been ascribed to the use of beer contaminated by vessels and pipes.

Prolonged tippling results in a complex series of disturbances, dependent upon the character of the tippie, and the habits and idiosyncrasy of the person. Overindulgence in malt liquors is particularly apt to be followed by parenchymatous and fatty degenerations in the viscera; while distilled liquors most frequently lead to gastro-intestinal disorders, forms of sclerosis affecting especially the liver, kidneys, and central nervous system, neuritis and palsies, obscure neuroses, epilepsy, mania and dementia. Alcohol seems to increase the tendency to rheumatism and gout. There is a noteworthy relationship between the incidence of alcoholism, the psychoses, insanity, venery, and crime. In part, this is due to the favoring influence of alcoholism upon the spread of other forms of dissipation and venereal disease. Alcohol increases sexual desire, obtunds the moral sense, and favors a careless disregard of precaution against infection. Forel found that venereal infection was more frequent in conjunction with occasional than habitual alcoholic indulgence. In over three-fourths of the cases studied, the patients were under the influence of alcohol when infection occurred. Dana places the average duration of life of the continuous drinker at 15 years and of periodical inebriates at 19 years. As a rule the hard drinker becomes a wreck about the age of 40.

In portions of Ireland *ether* is a preferred tippie. In Philadelphia the theft of *gasoline* from street lamps led to the discovery that this was inhaled by children for the purpose of inducing intoxication. The physical and moral impoverishment resulting from the *chloral*, *opium*, *cocain*, *cannâbis*, *indica*, *caffein*, *chloroform* and *ether* habits is well known. The excessive use of *to-*

bacco may cause disease of the heart, impairment of vision, and nervous irritability or exhaustion. The tendency of those suffering from forms of chronic intoxication to become sterile or to have neurotic progeny or morally or physically defective, may again be mentioned.

Sexual excesses lead directly to diseases of the nervous and circulatory systems, as well as directly to venereal and other infections and to their grave sequels.

Occupational spasms, palsies, or neuroses result from physical and mental *overwork*, or may be hereditary expressions of ancestral dissipation.

Certain psychic or intrinsic conditions, such as *inordinate ambition*, depraved or perverted *emotions*, as well as depressing and exhausting *habits*, and the like, may be mentioned under this head, as they involve excessive expenditure of energy.

In the *prevention* of dissipation especial stress should be placed upon the moral education and the development of self-control. This is the more necessary in the case of those inheriting morbid tendencies to depraving indulgence. Such persons should be made to realize that the expression of hereditary tendencies is by no means inevitable, and that self-restraint may be cultivated. As against sexual impurity it is of especial importance that a higher moral standard be cultivated among men. Gower's dictum that "No man was ever worse for continence or better for incontinence" should early be impressed upon the minds of youth. Moreover, the fact that venereal disease is an almost inevitable concomitant of unchastity should be widely taught. Sexual hygiene properly finds a place in the public school curriculum. The family physician may do much by maintaining an advisory oversight of those with a tendency to mental or nervous affections, pointing out the character of work to be adopted and insisting upon appropriate exercise, relaxation and nutrition.

OCCUPATION.

The influence of occupation upon disease production is due chiefly to unhygienic environment. Although some occupation are injurious from the overuse of certain functions, and others from the mental stress or the emotional excitement involved, and still others from too long hours of work, injury more often comes through the inhalation of vitiated, irritating, toxic or even infectious atmospheres, from exposure to trauma, to extremes or variations of temperature, to alterations in the atmospheric pressure, to the action of cathode rays and other forms of radiant energy, or to conditions causing deficient nutrition. Besides these factors, there is a tendency to dissipation associated with many occupations, that distinctly increases the liability to disease.

The Mechanical Effects of Occupation.

For the maintenance of health it is essential that all portions of the body be exercised. We

are not created to exercise one single function, but to obey the "law of variety in exercise." It, therefore, follows that occupations attended by the disproportionate use of a single part of the body tend to a local overdevelopment and favor deficiencies elsewhere. Longevity is associated with those professions giving the greatest amount of moderate general exercise to the entire organism; while the more highly specialized forms of occupation are usually attended with an increased mortality. Disease, either general or local, is followed by fatty degeneration, deficient development, and atrophy, and, if general, it is often associated with anemia. Excessive use, on the other hand, may be followed by the so-called *occupation neuroses*, in which there occurs either spasms or palsy of the affected muscles. Common examples of these neuroses are the forms of *writer's cramp*, *pianist's cramp*, *telegraphist's cramp*, *typist's cramp*, *compositor's cramp*, *milk-er's cramp*, *tailor's cramp* and *sawyer's cramp*. In all these diseases there is a spasm affecting particularly the flexors and abductors of the forearm and hand when they are brought into use. The condition is difficult to relieve, except by avoiding the exciting cause either by changing the occupation or by means of some mechanical aid that will give rest to the affected muscles. A similar condition of the lower extremity may occur in *sewing-machine operatives*, *organists*, *turners*, *treadlers*, *dancers* and *athletes*. More rarely, paralysis attacks the overused muscles, as occurs in *scrivener's palsy* and in *hammerman's palsy*. The occurrence of either of these conditions implies an abuse of the muscles involved, and their prophylaxis lies in the adoption of a less narrowly specialized occupation.

Examples of *defective development* as a result of certain pursuits are common, and may be so pronounced as to enable one to determine the occupation from the deformity present. The poorly developed and bowed legs of *cowboys*, *cavalry officers*, *jockeys* and *grooms*, associated with a tendency to "toe-in" in walking, are suggestive of long-continued horseback riding. *Tailors* may show a wasting of the thenar eminences of the palm, a result of their method of holding the cloth. A narrow, contracted pelvis is especially common in *shop-girls*, or in women who have spent much of their time during the developmental period in standing. Long-continued standing also favors the development of varicose veins and ulcers. Those whose occupation causes them to *bend over* much of the time, frequently suffer from engorgement of the abdominal viscera, with associated congestive troubles and headache, and usually have round shoulders and grades of vertebral curvature. Such deformities are found in *shoemakers*, *students*, *engravers*, *miners*, *laundresses*, *gardeners*, and may be very appositely contrasted with the erect carriage of those who make it a practice to carry burdens upon the head. *Shoemakers* frequently also develop a depression of the thorax involving the lower portion of the sternum and the false ribs. *Blacksmiths*, *carpenters*, and others who use one hand very much

more than the other usually show a lateral spinal curvature, a result of the constant pull from one side. Other occupational deformities are the flabby, puffing cheeks of *those who blow wind instruments*, the lateral inclination of the head of *violinists*, the exaggerated hands of the *pianists*, and the characteristic condition of the internal metatarsus, or so-called "onion," in *toe-dancers*.

Callosities show such a close relationship to the occupation that Vernois has considered them from a medico-legal standpoint, as an important means in the identification of persons. They are found upon the tips of the fingers of the left hand in *violin*, *guitar*, and *'cello players*, upon three fingers of *drummers*, and the entire internal hand of *laundresses*; upon the right hand of the palm and fingers of *shoemakers*, on the radial border of the index-fingers in *woodcarvers*, on the index-finger and palm of *composers*. On the left hand, on the palm, index fingers, and thenar eminence in *locksmiths*, and over the five metatarsal bones externally in *tailors*. Callosities may also be present over the tuberosity of the tibia in *clergymen*, over the ensiform portion of the sternum in *wheelwrights*, over the ischial region in *horsemen*, and upon the entire surface of the left thigh in *shoemakers*.

Occupations may be associated with characteristic *traumatisms*, as is seen in the peculiarly pigmented hands and faces of *coalminers*, a result of the embedding of bits of coal beneath the skin. Cataract is especially common in *blacksmiths* apparently the result of the bright light and flying particles of metal to which they are exposed.

Forms of *hydrarthrosis* or distention of the synovial bursas are associated with certain occupations. The enlarged bursa under the elbow found in *miners* and in *draftsmen* (miner's elbow) and the distended prepatellar bursa in *scrub-women* (housemaid's knee) are examples of this affection.

Characteristic changes in physiognomy are impressed by many vocations. The color and texture of the skin, the degree of dilatation of the superficial vessels and the condition of the sebaceous glands are modified by climatic exposure, abstinence or excess and the general care of the person. The development of the face and presence of characteristic lines or wrinkles result from the predominant use of certain muscles. Thus, the recurrent expression of certain emotions that is associated with particular callings leaves an indelible impress upon the face.

The *internal organs* are mechanically affected by certain occupations and modes of life. The atrophic groove found in the adipose tissue about the waist of *blacksmiths*, *butchers*, and others who wear cords tightly tied about the body, and the furrow in the livers of women that practice tight lacing, are the results of continuous external pressure. Persons engaged in occupations associated with the inhalations of large quantities of *dust* have a tendency to certain characteristics lung affections. The black, anthracite lungs of *coalminers*, associated with the tendency to pulmonary tuberculosis; and the predisposition to

fibroid and tuberculous changes in the lungs of *grinders*, *polishers*, *stone-cutters*, and the like, are the results of the inhalation of large quantities of irritating dust. In these cases the predisposition to tuberculosis seems to be brought about chiefly by the continued mechanical irritation, and this is found to be especially marked when the dust, being hard and insoluble, remains as a continued source of irritation. The names "*coal-miner's phthisis*," "*grinder's consumption*," and like terms express the relationships of the grit to the disease. The softer dust from the wood and textile fabrics is less harmful. By the adoption of measures that give relief from constrained positions to the workers, that provide proper food and air-supply, and by the employment of respirators and, especially, proper ventilating and exhaust appliances where dust is generated, many of these injurious effects of occupation may be avoided.

Intoxications Associated with Occupation.

Certain occupations involve the use of *toxic materials*, with which the workman is apt to be brought in more or less intimate contact. The lesions produced, of course, depend upon the nature of the poison. In *silver-miners*, *smelters*, *potters*, *lead-burners*, *file-makers*, workers in *white lead*, and painters, the characteristic palsies and intestinal symptoms of lead (*plumbism*), antimony and arsenic are common. Miscarriages, still-births and infantile convulsions occur in increased frequency in the families of lead-workers. In mining, the extraction of gold, in gilding, the manufacture of hats, and in certain of the arts the use of *mercury* leads to poisoning, characterized by anemia, gastro-intestinal irritation, inflammation and ulceration of the gums, loss of teeth and other symptoms. Workers in *copper* rarely suffer from subjective symptoms, but may have the hair, skin and mucous membranes tinged green by the presence of copper salts.

Brass workers may develop anemia, tachycardia, nausea, vomiting, pains of the throat and abdomen, succeeded by progressive emaciation, or a form of ague, "*brass founder's ague*." Murray attributes these symptoms to the absorption of copper. In *match factories* a necrosis of the jaw-bone due to phosphorus (*phossy jaw*) occurs.

In the manufacture of *potassium bichromate*, poisoning characterized by forms of eczema, headache, ulceration and perforation of the nasal septum among the employes is not uncommon.

To those who work in atmospheres exposed to *irritating fumes*, as from nitric and hydrochloric acid, chlorin and bromin, are prone to develop affections of the upper respiratory tract. The vapors of sulphuric acid, however, seem comparatively harmless, and, indeed, enjoy the repute of conducing to good health. Cooks and others from the prolonged inhalation of small amounts of carbonic oxide, and anæsthetists from the in-

halation of ether and chloroform may develop anemia and mental disturbances.

The impure hydrogen used for inflating *balloons* often contains considerable quantities of arsenic that may induce serious poisoning in aeronauts.

In the manufacture of *vanilla flavors* workers may develop skin eruptions, pruritus, and furunculosis, headache, nausea, vertigo, insomnia, muscular pains, and irritation of the bladder. This is attributed to molds found upon the vanilla, or to cardol present in the oil of the cashew-nut that is used to improve the appearance of the vanilla bean. From handling candies, *confectioner's disease*, characterized by roughening and blackening of the nails and loosening of the periungual border occurs.

The use of potassium cyanid in certain *photographic* processes occasionally leads to poisoning.

Physicians and their patients have experienced toxic effects from the use of chemical *antiseptics*, including mercuric chlorid, carbolic acid, formaldehyde, iodoform, bismuth subnitrate, acetanilid and boric acid.

The substitution of aseptic for antiseptic surgery obviates the danger to the patient, and the surgeon who uses toxic solutions may increase his personal safety by wearing, during the course of operations or dressings, sterile rubber gloves over his previously sterilized hands.

The relatively high *mortality* associated with certain occupations is often traceable to an associated toxic influence. The following table indicates that renal and urinary diseases and gout are closely related to lead-poisoning and alcoholism, and that they frequently express occupational intoxications.

RELATIVE MORTALITY OF GOUT, RENAL DISEASE, URINARY DISEASE AND LEAD-POISONING IN RELATION TO OCCUPATION.—(After Poole)

	Gout	Renal Disease	Urinary Disease	Plumbism
Lead-workers.....	0	85	76	2-11
Plumbers and painters.....	10	63	0	10
File-makers.....	0	82	0	75
Farm laborers.....	0	12	0	0
Potters (earthenware).....	0	0	0	17
Glass-makers.....	0	0	0	14
Law clerks.....	8	56	35	0
Physicians.....	8	56	23	0
Building trades.....	4	0	0	0
Liquor dealers.....	20-10	70-50	36-23	0

working in lead and silver mines or engaged in should take particular care as to cleanliness. All working in lead and silver mines, or engaged in other occupations in which lead is encountered, should take particular care as to cleanliness. All the water drunk should carefully be covered to protect it from contamination, and the addition of sulphuric acid is advised as a useful prophylactic measure. Workmen should eat their meals outside the factory, and should carefully wash the face and hands and cleanse the nails before each meal.

(To be continued.)

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, MARCH, 1903.

No. 3

ORIGINAL ARTICLES.

EPIDEMIC PAROTITIS WITH METASTASIS TO THE FEMALE GENITALIA; WITH A REPORT OF A CASE.

BY GEORGE MCNAUGHTON, M.D.,

Consulting Gynecologist to Long Island State Hospital, Visiting
Gynecologist to Long Island College Hospital, Kings County
Hospital, and Brooklyn Eastern District Hospital.

Read at a Meeting of the Brooklyn Gynecological Society Decem-
ber 5, 1902.

MUMPS may be defined as an infectious disease, characterized by inflammation of the parotid gland. The nature of the virus producing this disease is unknown. It is met most frequently in childhood and adolescence. Very young infants and adults are seldom affected. It is more common among males than females. The period of incubation is from two to three weeks, symptoms being usually absent during this stage. The parotid gland and sometimes the sub-maxillary swell, the surrounding tissues become tense, and consequently somewhat painful. This condition persists for about ten days or less, then gradually subsides and the patient rapidly regains his health. As has been stated, the micro-organism of this disease has not been determined, yet it is supposed that it enters through the excretory duct.

In the adolescent male, orchitis on one or both sides may develop directly as the parotitis subsides, or it may occur ten days or two weeks later. This complication, if it may be so called, is rare before puberty, and is also rare in the thoroughly matured man. The proportion of cases of orchitis varies in different epidemics. The orchitis sometimes develops before the parotitis, and it may be the only manifestation of the infection. In one epidemic reported by Comby, there were 699 cases. Of that number there were 211 cases of orchitis, and it is interesting to note that 103 instances of atrophy followed 163 cases of orchitis.

Symptomatic parotitis may occur in the course of infectious fevers, as typhus, typhoid, pneumonia, pyemia, etc. This form of inflammation of the parotid sometimes occurs in connection with injury or disease of the abdomen or pelvis. Of 101 cases of this kind reported by Stephen

Paget 10 followed injury or disease of the urinary tract, 18 were due to injury or disease of the alimentary canal, 23 were due to injury or disease of the abdominal wall, the peritoneum or the pelvic cellular tissue. The remaining 50 were due to injury, disease or temporary derangement of the genital organs. By temporary derangement is meant slight injuries or natural processes, as slight blow on the testes, introduction of pessary, menstruation or pregnancy. Most practitioners have observed examples of orchitis accompanying or following epidemic parotitis. Some have seen it occur as a symptomatic parotitis, and nearly all have been interested in the subject from a pathologic standpoint. No satisfactory explanation has been offered. Most of the textbooks refer to the ovaries and breasts of the female as being involved at times. Yet careful search has failed to find but few instances.

In the *British Medical Journal* of June 20, 1891, appears a letter from John Benjamin Hilleu, Lecturer on the Diseases of Women and Children, Yorkshire College, Victoria University, in which he says: "There is a great dearth in recent literature of instances of metastasis in the female breast, ovary, vulva or uterus, and any practitioner who should record a case of metastasis to any of these structures, arising from mumps, would furnish material of great interest and value, especially in regard to the last three, namely, the ovary, vulva and uterus."

In *Magazin für die Gesamte Heilkunde*, band 15, Berlin, 1825, "Medical Observations," Dr. Anton Fred. Fisher, of Dresden, reports the "case of a girl of seventeen who had an attack of acute rheumatism complicated with double swelling of the parotids. The fever and all except the parotoid swelling subsided in a few days. She was allowed to get out of bed, and a little later to go out. Eight days later she had a chill and fever, with a sharp pain over the left ovary. In spite of antiphlogistic treatment the ovary remained swollen and tender. The pain was of a boring and sticking character, which continued until a glary mucus started from the mouth of the uterus."

In the *Stethoscope and Virginia Medical Gazette* for June, 1851, A. Snead, of Richmond, Va., reports a case of metastasis of mumps to the brain and uterus. The report is as follows:

"On the eighth day after swelling of the right parotid, the left becoming involved three days later. When seen the patient's head was intensely hot, temporal arteries beating violently, patient somewhat delirious, occasional vomiting. At this time a bloody flow from the vagina occurred which was ten days before her regular time, which heretofore had always been regular and at which time she suffered no pain. Now there was a very smart pain in the region of the womb, and the discharge was greater than normal. Pressure over the hypogastric region caused considerable pain. The mammæ were not affected."

A case of abortion was reported by Thomas Salter in the *London Medical Gazette*, 1849, page 106, under the title "Abortion Produced By Metastasis in Cynanche Parotitis." Abortion at three months occurred during the first week of the disease. No tendencies in previous or subsequent pregnancies to abort.

Dr. Charles W. Risk, of Quincy, Ill., reports a personal case in the *Gaillard Medical Journal*, October, 1894, of parotids with metastasis in a pregnant uterus which resulted in a miscarriage at three months, and he also refers to a case of Dr. F. D. Halcom, which was reported in the *Journal of the American Medical Association*, May 14, 1884. This patient was delivered of a dead child at seven months, the patient herself being delirious and dying two days later.

Le Progrès Médical, Paris, Feb. 11, 1893, "Localization of Mumps in the Sexual Organs and Their Anexæ," by Dr. Comby. After considering the metastasis of mumps to the testicles, he takes up the consideration of the complications in the female sexual organs. He considers ovarian complications very rare, and proceeds to give the literature as far as he knows it. His first citation is from Trousseau, who discovered a metastasis of mumps in the mammary glands and was astonished that the ovaries were not affected in the same way. He next cites Bizet, who saw two females, aged 29 and 32 years, with severe pain in the region of the ovaries, preceding the swelling of the parotid glands. Quoting from Neimyer, who had observed pain which was aggravated by pressure over one or both ovaries led him to suspect that the female organs did not become affected the same as the testicles. Citing another case from Mynet of a girl aged 16, menstruation irregular, who had double mumps, swelling of the parotids subsided in eight days, but the fever continued high. A severe pain began a little below the right of the base of the right iliac fossa, and a tumefaction could be

made out over the right ovary. At the end of three weeks swelling of the parotids reappeared and that of the ovaries subsided. Citing from Peter, a girl at the beginning of a regular menstruation was attacked with mumps. Instead of the flow coming on, the parotids swelled and a thrombus of the labia major and minor occurred. Still another case is Boutillier's, of a girl aged 6, double mumps with pain in the iliac region, finally localized over the right ovary. A tumor corresponding to the ovary was made out. It was fusiform transversely, movable and painful. Recovered in two weeks.

After reiterating that ovarian complication of mumps is a rare condition, he states that this ovarian inflammation is apt to produce atrophy and sterility.

In *Review Medicale de la Suisse Romande*, third year, No. 2, page 81, 1883, Dr. V. Gautier reports a case of a woman who, while in child-bed contracted mumps from a child 8 years old. There were no mammary or ovarian complications, parturition and mumps both ran a normal course.

L'Union Medicale, Oct., 1894, Transactions of the Academy et Societie Savants, Paris, reporters names not given. After describing three or four epidemics of mumps, some of the cases being complicated with orchitis, the reporter speaks of the ovarian complication of mumps. In introducing this part of the subject he says that Bizet and Le Marchand observed swelling of the male mammary glands with a discharge of fluid on pressure. While this is a rare condition it is still more so in the female, and swelling of the ovary he considers still rarer. He then mentions the following cases, but does not give any description:

Fernel's three cases reported in 1812, one by Jobard and one each by Biznet, Meynet and Boutillier. Also Peter's and Comby's cases (see abstract from *Le Progrès Médical*, Feb., 1893). He considers Comby's case one of anomalous ovulation.

Laglais, Rilliet and d'Heilly have reported cases similar to Peter's. D'Heilly reports a case of mumps complicated with metorrhagia. He states that other authors have observed mumps affecting the female sexual organs, but that they have not given sufficient data to prove their cases.

Trans. of the Soc. of Medical Sciences of Lyons, 1867. Dr. P. Meynet reports a case in a girl 16 years of age. She was lymphatic and nervous and had lived all her life in a malarial locality. Was attacked with mumps of the right

parotid and a few days later the left became involved. On the sixth day of the disease she complained of discomfort in the right iliac fossa, a slight swelling could be made out over the right ovary. Nothing was noticed on the left side. On the eleventh day of the disease there were pain and swelling of the left ovary. The ovarian complication remained for three weeks, during this time the parotoid swelling and tenderness subsided, but returned when the ovarian tumor disappeared. He questions if the ovarian complication is a metastasis, and adds that if it is, it is a rare complication. He quotes a case reported by Gubian of a girl with irregular menstruation who had, following double mumps, a tumefaction of the ovaries. He says that swelling of the labia is not an uncommon complication of mumps.

Hospital Reports, Hotel Dieu, Service of Fournier, *Journal de Médecin et de Chirurg.*, 1 Pratiques, 1867, tome 38.

Female, aged 34. Fever, headache and night sweats for eight days, followed by a swelling of the left parotid. The next day the right gland was involved. When the granular swelling subsided the labia became enormously swollen.

"Graduation Thesis, 1888. A Contribution to the Study of the Fever of Mumps." By Dr. Benj. Bourgeois.

After a number of pages given to the general consideration of the disease, he turns to the complications: That of the mammary gland has been observed. Fernel, in a thesis, Strasbourg, 1812, was the first to call attention to this complication and reports a number of cases. In a thesis, 1875, Joubard (Paris) reports another. Of ovarian complications he says that very few cases have been observed, and those that have been are of doubtful authenticity. He quotes the case of Meynet and Boutiellier, and a new one seen by Moutard-Martin. The author attempts to explain why so few cases have been observed by the fact of the difficulty in diagnosing the complication. He does not attempt to advance any theory of how the various organs become affected, except by metastasis. He remarks that it would be interesting to note if the woman with ovarian mumps became sterile as men often do. He states that the tumefaction and inflammation of the labia have been observed a number of times and quotes Rilliet, Fournier and Gailhard as authority.

"On the Occurrence of Affection of the Ovaries Accompanying Epidemic Periparotitis of Very Young Girls." By Docent Troitsky.

Russkoi Vrach,* Vol. I, No. XV, April 6, 1902. "During the end of last year I had occasion to observe a series of cases of epidemic periparotitis complicated with affection of the gentilia. The young patients were under the direct observation of Dr. Geouk, who gave me the opportunity to take part in their examination. The epidemic began the first of February, and lasted until the 7th of March, or 35 days. The number of patients was 33. Their ages were as follows: Two were nine years of age, two were 10, two were 11, ten were 12 years of age, seven were 13, the same number 14, and three were 15 years of age. The average duration of the disease was 15.7 days. (Maximum 26, minimum seven.) From one to two weeks the disease lasted in 21 cases, and from three to three and one-half weeks in 12 cases. In the first three days of February there were 24 cases. Thirteen out of all the girls menstruated, the rest did not. Double-sided inflammation of the glands was observed in 27 cases, or one side in six cases."

The chief interest of this epidemic lies in the fact that in many cases the disease was complicated by disease of the ovaries.

The latter could be demonstrated by tenderness in the region of the sexual organs, the examination being made by pressure on the abdominal wall. It is true that such a method of examination leaves room for many objections, but it was the only admissible one. The presence of tenderness over the anatomical place of the ovaries was a very typical one. Of all the 33 cases the ovaries were affected in 13. Eight of them had already had their menstruation, the rest had not. When the parotid gland was affected on both sides, both ovaries were diseased, when the disease of the parotid gland was only on one side, the ovary of the same side was affected. The tenderness of the ovaries lasted in most cases, as the observations of Dr. Geouk showed, longer than the inflammation in the region of the parotid gland. There was one case where the latter inflammation lasted 26 days, and the tenderness of the ovaries only 10 days.

The clinical course of the disease was the usual one, the temperature ranging between 38.5° to 39° C. and only in one case it reached 40 C. There never was any abscess formation.

On reviewing the literature on the question, I frequently found mentioned different disturbances of menstruation following the disease. I requested Dr. Geouk to get information in that direction from the patient a year after the dis-

* Translation kindly furnished by Dr. Onuf.

ease was over. All the information was negative. The mammary glands were never affected.

Before I proceed with the review of the discussion of the opinions of recent writers, I wish to quote a chapter from my dissertation on this subject written in 1883. "Localization of the Disease in the Region of the Ovaries in Epidemic Periparotitis." "It is rather rare in comparison with the similar complication of the genitalia of boys. This should seem rather unexpected, taking into consideration the similarity of the function of the ovaries and testicles. Gynecologists do not mention the subject at all, and Grisolle, in his work on internal pathology, states that the mentioned complication of the disease is not at all demonstrated. The chief difficulty in gaining more knowledge on the question lies in the difficulty of making a thorough examination, as most of the patients are young girls. Why not admit that the complication occurs more frequently than it is observed and that it has a milder course than the similar complication of the testicles." Further, "the nature of the process is absolutely unknown, but this gives us no right to ignore the cases described by different authors. The general symptoms are various, as loss of appetite, fever, sleeplessness, in some cases slight indigestion without any fever, and finally, they are totally absent. In the latter case only the local symptoms are observed, and are as follows; pain in the lower part of the abdomen; on palpation there is generally found a tumor of a size larger than the usual ovary. The tumor is very tender and movable. The local symptoms gradually disappear." Only in one case, in 1853, Meisnhardt observed a girl of 16 years who had suffered from a double-sided pariparotitis. In the course of the disease an abscess was formed in the region of the left ovary. The abscess was opened and recovery followed. Meinhardt regarded the complication as a purulent perioöphoritis.

In the article of O. Leichtenstern on the inflammation of the ovaries during mumps, he gives mention only to the cases of Megnet and Banteillier, (cited). Hyperemia and inflammation of the ovaries are seldom observed on patients with mumps, according to Hennig. The well described cases belong to late infantile age, though it is possible that they will be demonstrated also in young girls. A case is described by Dr. Peter from the wards of Trausseau, where a girl with mumps got a severe inflammation of the ovaries, with a temperature of 40° C. The tumor of the parotid region at the same

time diminished in size. Quoting the data of Lebedinsky in regard to the frequency of parenchymatous inflammation of the external layer of the ovaries with the following loss of its normal function, Hennig at the same time throws a doubt on the possibility of the same complication during epidemic periparotitis. In the text-book of E. Bauchut cases are mentioned when repeated inflammation in the parotid region was accompanied by inflammation of the ovaries. Cadet de Gassicourt denies the possibility of the ovaries being affected during this disease, though admitting such a possibility for the other female genitalia.

It is impossible to agree with the argument of P. Mercier, who denies any complications in the female genitalia for the reason that Cadet de Gassicourt, A. Bagiusky and E. Henoch have not had any personal observation corroborating such a possibility. There were other authorities of equal reputation that had observed this complication. Finally, not in every epidemic of the disease do the ovaries get affected, or do so in a very slight degree, so that it can be detected only on a very thorough examination. Further, it must be remarked that the described complication occurs most frequently in young girls who conceal the pain in order to avoid an examination. Besides, mumps are regarded as a very harmless disease, where the help of the physician is unnecessary and which gives rise to no serious complications. B. Donkin, a follower of P. Mercier, goes so far as to call the localization in the region of the ovaries very problematical.

In the classical text-book of Bartlez and A. Saune, one reads that the ovaries are not as frequently affected as the testicles of boys having mumps: "C'est à dire a peine si l'on convait deut observations d'ovarite."

Oliver Rex, in his monograph, mentions that girls suffering from mumps may get the ovaries affected; however, the inflammation of the latter organs is not a serious matter and passes in the same manner as that of the parotid glands. When the complication is over, the disease of the original organ may be aggravated.

Recurrence of the complication in the early school age is beyond doubt. I. Comby and A. Monti quote a case of Voegt, where a girl, 11 years of age, on the third or fourth day of the disease got an acute pain in the region of the right ovary. On examination a movable, painful tumor was observed above Poupart's ligament. The tumor lasted five days. The first of these writers ascribes importance to the localization of

the tumor, while the latter denies its importance, adding that the tumor beginning on one side, develops also on the other side. This is noteworthy, as the course of the parotid swellings may be similar. Weill reports the case of a girl 10 years old. A slight tumor and pain developed in the region of the ovaries. E. Holt admits the possibility of the occurrence of the complication only in rare cases, and states that it is more possible in very young girls.

How different are the views of authors on this complication can be seen from the following: Le Geudre and A. Broca consider it so grave that they advocate complete rest in bed and ice on the region of the ovaries during the complication, while Tuttle declares that the complication passes without any ill effects.

Summing up the literature on the question, the following conclusions may be drawn: The localization of the disease in the region of the ovaries is in mumps more frequent than it is mentioned in literature.

The fact that the complication is observed less frequently in girls than the similar complication in boys, may be due to the fact that the female genitalia are less accessible to examination. General symptoms may be absent during the complication, and when present it is hard to analyze whether they belong to the original disease or the complication. It has to be remarked that local pains in the region of the ovaries occur most frequently at the height of the disease.

This observation on the alternating localization of the disease in the region of the parotid gland and in that of the ovaries, demonstrates a certain relationship between these two organs.

The anatomical nature of the disease is not yet known. By analogy, it may be admitted that there takes place either an inflammatory process of the outer layer of the gland, or singly, a parotitis. More serious changes may be admitted, like those that develop in the testicles, and that ultimately cause the atrophy of the latter glands.

The age when the disease complication is most frequent is 10 years, but may occur also in younger girls. It is of course a question whether the complication is very serious, or passes without any ill effect. The former seems more probable, though one would not wish to apply tincture or iodine or vesicants for the treatment of it. It is, however, absolutely necessary to keep the patient in bed for several weeks, having bandaged the abdomen and taking care of the regular function of the intestines.

Acting in this manner one may be more certain to avert any ill effects from following the disease.

I respectfully submit the following history: E. Q., now in her 18th year, began to menstruate at 14, always regular and always painful, pains commencing with the flow and continuing 12 hours after it was established. Several of her acquaintances suffered from parotitis. In her case parotitis occurred on both sides, well marked, on May 17. Two days previously, there was some difficulty in moving the lower jaw. She had suffered some malaise during the previous week.

Her last menstruation commenced on May 6, which was at the proper time, and her suffering was as usual. On the 22d of May as the parotitis began to subside, the patient suffered pain in both ovarian regions, which was increased in severity for two days, when a bloody flow appeared. The pain was severe enough to require the continued use of an opiate for five days, the temperature during the intensity of the trouble reaching 104° F. There was no swelling or particular tenderness of the breasts.

The next menstrual period occurred about six weeks subsequent to May 22. Since that date the menstruation has been regular and without pains. It is proper to state that the patient in the meantime had made a sea trip to Europe, which in itself might have delayed menstruation. The foregoing brief history I believe to be an illustration of the specific poison of parotitis affecting the female genitalia. I do not say ovaries, because I do not believe that it is possible to exclude other pelvic inflammation or engorgements and as there has been no opportunity for autopsy in cases of this kind, it is not yet definitely known that the ovaries are affected alone, and we can only consider such manifestations as may be apparent. As in the case related, we know that there are inflammatory conditions of the pelvic organs. But it was impossible to define an oöphoritis, salpingitis, metritis, or an endometritis; therefore the title of this paper. The use of the word "metastasis" may be questioned, although mumps have long been the dictionary illustration of that phenomenon. Pathologists question it and all fail to describe a satisfactory anatomical route of the pathogenic organism.

It is not reasonable to suppose that the micro-organism of parotitis selects the parotid gland by preference, but may attack other glands or structures as another choice. The predilection

being the parotid glands, then the sub-maxillary, the testicles in the male, the mammæ in the female, the male breast, and finally and last, the female genitalia. The order mentioned may not be strictly correct, but it is as it appears to me at this time. Parotid gland extracts have been used in the treatment of ovarian disease. It was used first by Dr. Robert Bell, of Glasgow, Dr. John B. Shober, of Philadelphia, and Dr. E. Pierre Mallet, of New York. This paper is not intended to consider that phase of the subject. I shall only refer to the reason given for the use of the parotid extract, which was "the physiological relation shown between the parotid gland and the ovaries as seen by frequent metastasis between the two." A close inspection of the literature on the subject will show that it is a rare occurrence, unless the observations of Troitsky are indorsed in subsequent epidemics, in which case the matter is one of great practical importance.

Dr. Crandon, of Boston, in the December (1902) issue of *Annals of Surgery*, makes the following conclusions on the cause of enlarged prostate:

1. The underlying cause of the usual form of prostatic enlargement and of certain forms of prostatic atrophy is a slow formation of new connective tissue, due to infection or to infection aggravating a senile degenerative process.

2. The gonococcus is probably most often the specific infection, because (a) of its great frequency; (b) other inflammatory causes are not common in the parts in question; (c) a great similarity exists between the histology of gonorrheal processes and those seen in these senile prostates.

3. Neoplasms, fibromyomata, and adenoma occur, but may be called rare.

Dr. Francine (*Phila. Med. Jour.*) says that the indications for treatment in gastropnoia are: (1) To relieve the stagnation and fermentation and to increase the motor power or peristaltic activity of the stomach; (2) to furnish support to the stomach and other abdominal viscera, thus relieving local congestion and symptoms of weight; (3) to tone up the general health and mental attitude of the patient. The means at our disposal are hygiene, diet, lavage and drugs; massage and exercises to strengthen the abdominal muscles; mechanical support, when indicated and, in bad cases with exaggerated symptoms unrelieved by other means, operation.—*St. Louis Med. Record*.

RAW COWS' MILK IN INFANT FEEDING.

BY ELIAS H. BARTLEY, M.D.

The history of the general consensus of opinion as to the best methods of artificial feeding of infants, reveals more rapid changes during the past few years than in any other branch of medical practice. These changes have been brought about by a better understanding as to the composition of human milk and of cows' milk, and of the better knowledge of the bacteriology of milk and of the intestinal canal, as well as of a more thorough appreciation of the principles of feeding and nutrition. The first real impetus to the scientific feeding of infants, based upon the chemical modification of cows' milk was given by Biedert's recommendation of mixtures of cream milk, sweetened, and made alkaline with lime water.

Meigs in 1882 first worked out a formula that he believed corresponded with the analysis of human milk. He called attention to the low percentage of proteids in human milk, and the necessity of reducing the proteids in mixtures for artificial feeding.

Rotch in 1889 recommended Meigs' mixture, but advised reducing the lime water.

Soxhlet in 1886 proposed (*Münch. Med. Wochenschr.*, April, 1886) sterilization of cows' milk by heat as the best safeguard against the intestinal disorders of bottle-fed infants. For a time sterilization, either with or without previous modification on the lines developed by Meigs became very general. Shortly after this I induced one of the milk companies of this city to put upon the market ready-made Meigs' mixture. After one summer's experience with this mixture I found that it was decidedly deficient in nutritive constituents. Out of about a dozen infants fed upon it, not one maintained normal nutrition, and most of them developed rachitic symptoms. A careful study of the milk in the laboratory showed that when the casein was coagulated either by rennet or by acid the albumin was precipitated with it, thus increasing the curd precipitated in the stomach. It was observed that the infants fed upon sterilized milk, as well as upon the cream mixtures, lost a large part of the proteids in the stools. Owing to these defects, noted by many observers, a reaction occurred, and loth to abandon the beneficial effects of cooked milk, pasteurization was very generally adopted. This consists in heating the milk to a temperature just short of the coagulating point of lactalbumin,

which is 158° F. While this was a distinct gain over sterilization at 212° F., there undoubtedly occur changes in the milk, not easy to understand, but which are evident to close observers of children fed upon such food. No fact in the etiology of rickets and scorbutus is better established than that they are developed during the prolonged use of cooked foods.

In 1898 the American Pediatric Society made a collective investigation of scorbutus with the following results relative to the diet:

Of 379 cases reported, breast milk was the only food in 10. Raw cows' milk in 4; pasteurized milk in 16; sterilized milk in 68; condensed milk in 32; proprietary infant foods in 214. These figures emphasize the difference between raw and heated milk, as an etiological factor in the production of this disease, although it is not certain that this is the only factor. It is somewhat surprising that ten of these cases were fed exclusively at the breast, and only four on raw cows' milk. It is probable, however, that the number of infants fed upon raw cows' milk is much less than those fed at the breast, or than those fed on condensed or sterilized milk. This fact will explain, in part, the surprising fact that of the cases collected, more than twice as many occurred in breast-fed infants as in those fed on raw cow's milk.

The general results of this investigation are in accord with the experience of numerous individual observers. The consensus of opinion is that pasteurization and sterilization are harmful to the nutritive qualities of cows' milk.

It is probably not due to the changes in any one or two constituents of the milk, but to a number or all of them. Our knowledge of the composition of milk has been materially advanced within the past few years. It has been shown that it is a much more complicated fluid than the general analyses show. Besides the usually stated gross composition, it has been shown to contain small quantities of a considerable number of substances. Among these we may mention lactoglobulin, albumose, peptone nuclein, lecithin, citrate of calcium, a starch-liquefying and a proteolytic ferment. Besides these more or less useful substances, certain excretory or waste substances have been found, as urea, hypoxanthin and other so-called extractive substances. Of these substances it is well known that lecithin is a stimulant to cell nutrition and cell growth. It is also probable that a part of the organic phosphorus of the casein is assimilated and used to give cell nutrition.

That cooked milk is different in nutritive value from raw milk has long been well known. Various unsatisfactory or crude explanations of this fact have been given from time to time, but it is only by a careful study of the minute chemistry of milk that we find the true explanation. The effects of heat upon milk are complicated and extensive. These are not confined to one or two of the constituents, but to nearly all of them, and may be summarized as follows: Cows' milk contains about 3 per cent. of casein, while human milk contains but 0.75 per cent. Casein is a nucleo-proteid existing in cows' milk as a neutral salt of calcium.

On heating cows' milk to a temperature of 70° F. or above, it slowly undergoes decomposition, with the separation of calcium phosphate, *i.e.*, a part of the organic phosphorus is converted into inorganic and non-assimilable phosphate of calcium. The casein becomes less easily clotted by rennet, but when clotted it is less easily dissolved by the digestive secretions, and more of it appears in the stools than when raw milk is taken. Lactalbumin exists in cows' milk to the extent of 0.5 per cent., and in human milk in the proportion of about 0.9 per cent. It is believed to exist in combination with some base, and when heated to 160° F., or above, it undergoes a change. It is converted into a colloidal condition, which precipitates on the addition of an acid. When the casein of boiled milk is precipitated by either rennet or acid, the whey is practically free from proteids. The albumin separates with the curd, and it thus increases the amount of curd formed in the stomach.

Milk sugar is found in cows' milk in the proportion of about 4.5 per cent., and in human milk to the extent of about 6.5 per cent. It exists in the form of a hydrate, which is dissociated by heat. This is shown by the loss of rotatory power. When a freshly made solution of commercial lactose is polarized, from time to time, the rotation changes for about twenty-four hours. That is, it requires about one day for the dried sugar to reach the condition of hydration that the true sugar of milk possesses. When the solution is boiled for some minutes it does not again seem to regain the normal condition.

Calcium citrate occurs in cows' milk as well as in human milk. Henkel calculates that a good cow yields as much citric acid in a day as will be found in two or three lemons.

On boiling, the calcium citrate is precipitated as an insoluble gritty powder, which is rather difficult to get into solution again, and it is prob-

ably mostly lost in the stools. It has been suggested by some recent writers, that, from the well known antiscorbutic action of citric acid, its loss may explain the tendency of boiled milk to favor the production of scorbutus.

The fat of human milk melts at a slightly lower temperature than that of cow's milk, which latter melts at about 96.5° F. Even at the pasteurizing temperature the fat is melted, and crystallizes on cooling. Melted butter fat is less easily digested than raw or unfused fat. The cream rises more slowly from both sterilized and pasteurized milk.

The organic phosphorus which exists in the form of lecithin and nuclein, in milk, is slowly converted into inorganic or non-assimilable phosphates at a temperature of 160° F., but quite rapidly at 212° F. The well-known nutritive action of lecithin is thus largely lost in boiled milk.

The enzymes are destroyed at the pasteurizing temperature, and whatever value they may have, is lost.

Milk that has been heated to 160° F. or above, effervesces with hydrogen dioxide in the cold, while raw milk does not.

Fresh milk, when mixed with a small quantity of paraphenylene-diamine, gives a blue color with a few drops of hydrogen dioxide, while sterilized milk does not.

With the knowledge of these changes in milk on heating, we can explain why so many of the attempts at finding a suitable substitute for human milk have been unsuccessful.

These attempts have been based too exclusively upon gross chemical analyses, and it must be admitted that the analyses of milk published prior to the past few years, and many of those of to-day are either erroneous, or do not give us the whole truth. It is not enough for us to know the per cent. of fat, sugar, proteids and ash. We know that the fat of cows' milk is not identical with that of human milk, the sugar is believed by Richmond to be different. The casein is different. While human casein is completely dissolved in peptic digestion, cow casein always leaves a more or less voluminous residue of pseudo-nuclein or para-nuclein, which passes with the stools. This insoluble residue gives a nidus for the growth of bacteria, and acts as a foreign body. The ratio between the albumin and casein is very different in the two milks, a matter of great importance in determining the amount and digestibility of the curd. The amount of organic phosphorus, of iron, of lime, etc., have an important bearing upon the nutri-

tive quality of the milk, and ordinary chemical analysis does not inform us on these points.

I am satisfied that a more careful study of the more minute constituents and properties of milk affords the most promise in the solution of the problem of infant feeding. Aside from the chemical study of milk we must give a most prominent place to the bacteriological examination.

Very much of the difficulty we have in the artificial feeding of infants is due to the disturbing effects of bacterial decompositions and irritations in the digestive canal. Very much depends upon the character and the number of bacteria introduced with the food. This has been long recognized, and sterilization by heat was introduced on this account. But this was a failure for the reasons above recited. It does not take account of chemical, physical and nutritive changes produced by the heat.

Those who have studied the subject most carefully have come to the conclusion that when pure, clean, fresh cows' milk can be obtained, it is the best food for infants at our disposal. By fresh cows' milk I mean that which has not suffered any change in composition from the the growth of bacteria or other agency. The number of bacteria present in a milk is the best guide at present known, in the absence of antiseptics, to its fitness for infant feeding. This is the equivalent of stating that this is the best index of cleanliness and proper care of the milk in handling. Investigations made by me during the past summer show that the health of infants is very greatly affected by the question of the number of bacteria in their food.

During the latter part of September a number of babies fed upon a certain supply of certified milk were found to suffer with green curdy fermenting stools. This change in the babies was coincident with a very great rise in the bacterial count in the milk. As soon as the high bacterial count was corrected the babies resumed their normal condition. The only change to be found in the milk was in the number of bacteria. Although the most of the bacteria found in milk are those which produce lactic acid, it has been found in the course of the work of the Milk Commission that the acidity does not follow the number of bacteria. The milk-testing tablets sometimes recommended for the detection of bad milk can not, therefore, be of much service, except to detect sour milk.

The temperature at which milk is kept after milking exerts an enormous influence on the growth of the bacteria.

Bacterial growth for most species is limited to the temperatures between 40° F. and 122° F, and the temperature of most rapid growth is about between 90° and 100° F.

The number of bacteria in milk when freshly drawn is subject to wide variations in different cows, and in mixed milk of a number of cows taken with aseptic precautions it will vary from about 500 to 3,000. When the first milk from eash teat is rejected, the remainder of the milk, when taken with aseptic precautions, will usually contain but a few hundred bacteria per c.c., or it may be almost sterile. In the production of certified milk a portion of the fore-milk is rejected, especially in hot weather, for this reason. When milk is taken from the cows with reasonable precautions as to contamination with dust and dirt, the number of bacteria need not be higher than 1,000 per c.c. If such milk is kept at a temperature below 60° F. the number of bacteria grows slightly less during the first four hours, owing to the germicidal action of fresh milk. In some cows this action is more pronounced than in others, and frequently is observed for six hours at 70° F. If, then, the milk be cooled to 45° F. and kept at that temperature, and without exposure to the air, the number of bacteria present at the end of 24 or 36 hours may be less than at the time of the milking. This is what is aimed at in the production of certified milk, and it can be attained, by care, with a great deal of success.

Having such milk, with all its constituents and properties preserved in their natural conditions, and fairly uniform in chemical composition, so far as the grosser constituents are concerned, because it is received daily from the same herd of cows, we certainly have a good foundation for preparing a suitable infant food.

The milk furnished under the seal of the Milk Commission of the Medical Society of the County of Kings contains at least 4 per cent. of fat, and not much more than 4 per cent., and not more than 30,000 bacteria per c.c., even in hot weather. The average number of bacteria in market milk served in bottles is from 100,000 to 250,000 per c.c. That from the best dairies, 15,000 to 100,000, and that served in cans from 500,000 in winter to several millions in summer, frequently reaching 100,000,000, in the case of "grocery milk."

It is self-evident that milk served in cans, and milk brought to the city in cans and bottled here is not fit to be fed to infants. So-called "grocery milk" or milk kept in any store where proper facilities for keeping it at a temperature below 50°

F. are not at hand, should not be allowed to be sold.

No known process of modification, Pasteurization or sterilization can make such milk a fit food for infants or young children. Pure, clean milk, constantly kept at a temperature below 50° F. and not more than 48 hours old is the only proper basis of food for the artificial feeding of infants. Even this will usually require some form of modification for infants under 8 or 9 months of age, at which time nothing more than slight dilution with water will usually be demanded for normal, healthy infants.

As I have elsewhere shown, the best diluent for milk during the first few months is whey. During the past three or four years, this idea has been rapidly gaining ground.

The only reasonable ground of objection to this method, is the complexity of the formulæ that have been published for its execution. These formulæ have been made unnecessarily complicated. Since commercial cream is almost universally sour and swarming with bacteria, we should reject all cream mixtures requiring its use.

With the top milk from a bottle of certified milk and whey we may do much better. The exact percentage composition of the laboratories is unnecessary, as the digestive capacity of infants is elastic enough to accommodate itself to the slight variations obtained in home modifications. Too much stress has been laid upon these exact figures. A number of investigations have been made of the composition of the top milk taken from the ordinary, well-creamed bottle as received from the dealer.

Dr. Winter and Dr. Chapin especially have made such studies and given us their results. As their results do not quite agree I have lately gone over the ground and I give the results of all three analyses for comparison:

For 4 per cent. Milk	Winter	Chapin	Bartley
Fat in top 8 oz.	17 per cent.	13.3 to 14	14.5
" " 11 oz.		9.7	10.
" " 16 oz.		7.	7.5
Skim Milk			.5

My results agree fairly well with those obtained by Chapin. For ordinary work these three grades of top milk are all that will be required. The most recent analyses of human milk show that it is subject to rather wide variations in composition, even when the nursling thrives in a normal way. This shows that the average infant can tolerate rather wide variations in its food without trouble, and extreme accuracy in the proportion of the constituents is not essential. In

feeding sick babies, we find that the only certain rule is the *try-rule*. In other words, we select what we think will agree, and if it does not, we try again until we have adjusted the food to the needs and capacity of the case in hand.

In the first trial it will be found necessary to reduce both the casein and fat below what a health infant of that age ought to have, and then increase them to the point of tolerance. The following table gives the average composition of the constituents of human milk, cows milk, skim gross milk from the ordinary well-creamed bottle and whey made from this skim or bottom milk.

	Human Milk	Cows Milk	Skim Milk	Whey
Fat	3.50	4.00	0.50	0.30
Casein	.75	3.00	3.00	0.00
Albumin	.90	.50	.50	.86
Sugar	6.50	4.50	4.50	4.50
Salts or Ash	.24	.68	.68	.60

The composition of whey here given is the average of the results given by eight analysts. I have found results which agree fairly well with the above figures. In two trials of milk that had been brought to the city in cans, and bottled here, I found one per cent. of fat in the bottom milk after 24 hours, and 0.86 per cent. of fat in the whey made from it. The top milk contained a correspondingly less amount of fat. The casein in the top milk may be one- or two-tenths of a per cent. less than that in the whole milk, but the difference is so slight that it may be disregarded. As we have above said, we will rarely need anything more complicated than the top 8 ounces, top 11 ounces and top 16 ounces, the whey made from skim milk and milk sugar. In some rare cases where the infant cannot tolerate .75 per cent. of casein, we may add egg albumin to increase the non-coagulable proteid. When this is done, the eggs must be fresh, as stale eggs are apt to produce putridity of the stools especially in hot weather. With the three grades of top milk, viz.: $\frac{1}{4}$, $\frac{1}{3}$ and $\frac{1}{2}$ of an ordinary quart bottle, we may form a variety of mixtures of different composition as shown in the following table. These values are understood to be closely approximate, but after an experience of five years with such mixtures I am convinced that in my hands they have been more successful than any others I have ever tried, not excepting the exactly adjusted percentages of laboratory milk.

MIXTURES WITH THE TOP 8oz. MILK OR FOURTEEN PER CENT FAT MILK.

Top Milk	Whey	Fat	Casein	Albumin	Sugar	Salts
1	3	3.7	.75	.77	4.5	.60
1	4	2.9	.6	.79	"	"
1	5	2.38	.5	.81	"	"

MIXTURES WITH TEN PER CENT TOP MILK.

Top Milk	Whey	Fat	Casein	Albumin	Sugar	Salts
1	2	3.43	.1	.75	4.5	.60
1	3	2.62	.75	.77	"	"
1	4	2.1	0.6	.79	"	"

MIXTURES WITH 7.5 OR 8 PER CENT TOP MILK.

Top Milk	Whey	Fat	Casein	Albumin	Sugar	Salts
1	1	3.9	1.5	.68	4.5	.60
1	2	2.6	1.	.75	"	"
1	3	2.00	.75	.77	"	"

One heaping tablespoon of sugar to the quart adds $\frac{1}{2}$ oz. or 1.5 per cent. The white of one egg adds to a quart .3 per cent of Albumin.

We have assumed that the whey for the above mixtures is made with rennet, and that the curd is well beaten during the process of clotting. When made in this way, my analyses show that about .2 per cent. of the fat of the skim milk is lost in the curd. That is, if the skim milk contains 1 per cent. of fat the whey will contain .8 per cent; if it contains .5 per cent. the whey will contain .3 per cent.

The whey must be heated to 150° F. before making the mixtures, to kill the rennin ferment.

By the addition of a heaping teaspoon of bi-carbonate of soda to the quart it need not be heated at all, as rennet will not coagulate milk containing two grains of HNaCO_3 per ounce.

DIAGNOSIS OF PRIMARY SYPHILIS.

BY G. MORGAN MUREN, M.D.,
of Brooklyn, N. Y.

Instructor In Genito-Urinary Diseases, University Bellevue Hospital Medical College, New York City, Lately Attending Surgeon Manhattan Hospital, and Adjunct in Genito-Urinary Diseases, Polhemus Memorial Clinic, Brooklyn, N. Y.

Read before the Associated Physicians of Long Island, Jan. 24, 1903.

It may be inferred from the title of this paper that it will bring to your attention some new and pathognomonic symptom of luetic infection, by which can at once be determined the nature of a particular sore, relieving the patient's mind and the physician's of further anxiety. Let me state that I have made no such gratifying discovery and that the object of this paper is primarily to emphasize our great responsibility in these cases and the desirability of waiting for secondary symptoms before attempting a positive diagnosis of syphilis. It will discuss the possibilities of a diagnosis from the primary symptoms, where for some special reason this seems desirable. Genital syphilis in males only will be considered.

With the exception of cancer and tuberculosis there is probably no disease, the presence of which causes as much terror to the individual affected, as syphilis. More important than the mental effect upon the patient, his entire life may be changed upon his disease being pronounced by his physician, and accepted by him as, syphilis. The questions of marriage, paternity, and his general mode of life will be gravely affected by the diagnosis. The physician having explained the gravity of the disease and its highly contagious nature, the conscientious syphilitic becomes in a measure a social outcast for a considerable period.

The writing of this paper was prompted by the fact that notwithstanding the practically unanimous opinion of syphilographers that syphilis can rarely if ever be diagnosed until the appearance of secondary lesions, many physicians attempt to decide the question from primary manifestations, and therefore submit some of their patients who do not have syphilis, to all the annoyances and anxieties of a course of treatment for this disease.

I can find but one American author who believes in the early use of mercury and shall refer to him later.

As representing the great class of syphilographers who have but little faith in the possibilities of an early diagnosis and are therefore not in favor of beginning anti-syphilitic treatment until the appearance of secondaries has positively settled the question, the following are quoted:

Robert W. Taylor¹:

"No statement can be made with more emphasis or with greater foundation of truth than that the proper time to begin systematic medication in syphilis is the date at which general manifestations show themselves. There is no advantage or possible benefit lost to the patient by withholding mercury until the onset of the second stage, nor is the patient thereby put in jeopardy, present or future, nor are his chances for ultimate permanent cure in any way impaired. On the other hand, syphilis will be more orderly and conspicuously more amenable to treatment, and his physician will not grope in the dark, and will, if he promptly attacks the disease in the conservative but vigorous manner soon to be detailed, be spared the doubt and uncertainty of mind which are the inevitable lot of those who treat the disease prematurely.

"Then again, when a patient sees convincing proof that he is syphilitic he usually persists in following treatment until he is pronounced cured."

R. H. Greene²:

"The men who claim that by looking at any ulceration they can state absolutely whether it is a true chancre or not, are unwise counsellors."

Hyde & Montgomery³:

"Delay in instituting systemic treatment of syphilis until the fullest recognition of the disease has been established in no wise jeopardizes the future of the patient nor his amenability to the later management of his malady."

Eugene Fuller⁴:

"No one can positively make a diagnosis of syphilis from the appearance presented by the initial lesion."

The advocates of the early administration of mercury claim that when it is used promptly in the primary stage the subsequent course of the disease is less severe. Taylor's opinion, already quoted, that this is not true, is held by most authorities who have followed the various plans of treatment. Mercury used before the appearance of secondaries usually renders them less distinct and therefore the final diagnosis less positive. It rarely if ever entirely prevents their appearance.

Another plea for early treatment is that we thereby save the patient from the disfiguring eruptions, alopecia, etc., that may arouse suspicion in the minds of his friends as to the true nature of his disease. To this I would answer that before any marked facial eruptions occur, the appearance of skin lesions on other parts of the body, in conjunction with the general adenopathy and other secondary symptoms, will settle the diagnosis and justify the beginning of active mercurial treatment. Syphilis as we see it to-day does not in the great majority of cases run the severe, destructive course described by the early writers, and patients are rarely suspected by their friends of having the disease.

It is impossible in the time allowed for this paper to enter into details regarding the diagnosis of secondary syphilis, but I will say that the eruption, general adenopathy, affections of the mucous membranes, alopecia, etc., present, usually, a very clear picture. In the occasional cases where the secondaries are incomplete, the presence of one of them considered with the history will usually be sufficient to decide the diagnosis in the mind of a competent observer.

The primary stage of syphilis begins at the moment of infection and lasts until the appearance of secondary symptoms announces the onset of the second stage.

It is during this period of the disease that the diagnosis is most difficult, in practically all cases

impossible, and during which it should only be attempted in the rare cases where some urgent necessity, incident to the patient's environment, demands it. The patient being married, his family relations may be seriously interfered with and the happiness of many innocent persons affected if secondaries be allowed to clearly develop.

The diagnosis of primary syphilis is sometimes attempted from the following points:

The chancre.

The associated adenopathy.

The period of primary incubation.

By confrontation.

The three common forms of chancre are:

The dry scaling papule in which the surface remains unbroken.

The superficial erosion, probably the most common form of uncomplicated chancre.

The ulcerating initial lesion (Hunterian chancre).

Fournier⁵ in a recent paper gives the following diagnostic points as characteristic of syphilitic chancre:

1—A small circumscribed lesion, eroded more frequently than ulcerated.

2—An erosion not circumscribed.

3—A smooth erosion.

4—An erosion habitually red; sometimes grey.

5—An indurated erosion.

6—This erosion accompanied by an adenopathy, called the Pleiades of Ricord.

As to color he makes the following positive statement:

"But much more frequently the chancre is red; a more or less sombre red, the color of muscle; this aspect is absolutely characteristic, and often suffices to fix the diagnosis."

Syphilitic chancre occurs most commonly as a single sore, and if there be more than one, they appear synchronously; *i.e.*, it is not auto-inoculable. Its most prominent characteristic is its indurated base. According to Fournier⁶ this characteristic induration is absent in but one per cent. of cases of true chancre.

Despite Fournier's high place as a syphilographer, I cannot share his positiveness regarding these alleged characteristics of the primary lesion. Doubtless many typical cases may present them, but unfortunately the atypical varieties predominate.

The induration varies greatly in degree, sometimes it is so slight as to be barely appreciable to the touch, and again it may feel like a piece of wood beneath the sore. Its sharply defined margins in typical cases can be differentiated from

the general boggy associated with soft chancre. Unless irritated by the clothing or some misdirected treatment pain is a rare symptom. The secretion is scanty if any.

The associated adenopathy differs from that of the soft sore by being greater in extent and less in degree. The inguinal glands appear in chains, like bullets beneath the skin, they rarely suppurate and are practically painless.

The period of primary incubation may or may not be of assistance in a particular case. If three or more weeks have elapsed between exposure and the appearance of the sore, it is probably a hard chancre; on the other hand if the sore has appeared within a few days or a week after exposure, while we can be reasonably sure that we have a soft chancre present, we cannot exclude the possibility of a mixed infection.

Confrontation as an aid in the diagnosis is unsatisfactory, and is rarely possible. The patient may be uncertain as to where he contracted the disease and, even if positive, an examination of the suspected person is rarely obtainable.

It is of interest to note two rather conflicting statements of Jonathan Hutchinson, probably the most prominent living syphilographer and well known as an advocate of the early administration of mercury. In his work on Syphilis⁷ under "treatment of chancres," he says: "As regards indurated primary sores, if the hardness be such as to justify a positive diagnosis, and if, in further corroboration, there be also the bullet bubo, there can be no question as to the treatment. Mercury should at once be given."

Under "soft or non-infecting sores" he states in closing the subject: "Such being the facts, it is absurd to attempt the formation of sharply defined rules in the diagnosis of chancre. The general precepts in use, are, however, safe enough if we are content to apply them lightly, and careful to remember that they have many exceptions."

Lydston,⁸ of Chicago, perhaps the only syphilographer in this country who advocates early anti-syphilitic treatment, says:

"It is our duty to begin treatment just as soon as the diagnosis is established, as the duration of the initial lesion is thereby shortened, and secondary symptoms moderated, if not prevented. To save the patients from lesions upon the body or face, that he who runs may read, is very desirable and is only to be accomplished by early treatment. It must be acknowledged, however, that those cases in which treatment is not begun until pronounced eruptions appear, sometimes, seem to respond more readily and to give rather less an-

noyance during the active period, than where mercury is given as soon as chancre develops."

In closing I have only to say, that in giving an opinion as to the nature of a particular sore we should be very guarded.

I would not use mercury until the appearance of some secondary symptom.

REFERENCES.

¹Genito-Urinary and Venereal Diseases, Robert W. Taylor, 1900.

²Syphilis, a Symposium, 1902.

³Syphilis and the Venereal Diseases, Hyde & Montgomery, 1900, page 224.

⁴Syphilis, a Symposium.

⁵Jour. Des Sci. Med. de Lille. Quoted from Syphilis, a Symposium.

⁶A System of Genito-Urinary Diseases, Syphilology and Dermatology, Prince A. Morrow, Vol. II, p. 74.

⁷Syphilis, Jonathan Hutchinson, 1889.

⁸A Text-Book of Genito-Urinary, Venereal and Sexual Diseases, G. Frank Lydston, 1889, p. 482.

SOME CONSIDERATIONS ON INTRA-PELVIC INFECTION WITH REFERENCE TO RATIONAL TREATMENT.

BY WALTER B. CHASE, M.D.,

Consulting Gynecologist to the Long Island College and the Nassau Hospital, Borough of Brooklyn, New York City, N. Y.

Read before the Associated Physicians of Long Island, Jan. 24, 1903.

The limitations of the occasion, and the time at my disposal, forbid any extended discussion of the topic under consideration, and my remarks must necessarily be cursory and fragmentary. The etiology of these infections might profitably occupy an entire paper, but they can receive only passing notice. It is with their results the surgeon has to deal; and notably among them are exudations, effusions, adhesions, suppurations and degenerations; and they may be either localized or general. The more common cases arise from infections into the vagina finding their way through the absorbent vessels or fallopian tubes, from the escape of the comma bacillus, through the intestinal tract, from perforations incident to typhoid fever, from ulcerations of the gall-bladder and extravasation of urine from any part of the urinary tract and from pus accumulation accidentally finding its way into the peritoneal cavities or the viscera therein contained. In some cases the germs producing these conditions come from outside the body, in others there is auto-infection. Nature in her effort to combat these abnormal processes resorts to various expedients. First and most frequently, nature endeavors by exudates to cover and to localize the infective

germs. This accounts for the frequent and widespread adhesions which are so commonly found in pelvic surgery and in autopsies. The success or failure of nature to stay the ravages of the disease depends on circumstances. Providing the infection is not too virulent, and the patient is vigorous and strong, the infective poison may become isolated and the immediate risk of systemic infection avoided. If, however, this is not accomplished, serious constitutional symptoms are liable to follow. For this reason, early observation and exact differentiation are not only desirable but imperative; for on the proper interpretation of these symptoms must be formulated rational methods of treatment. When conditions permit, examination of these morbid products should be subjected to rigid scrutiny, in the hope that the exact nature of the infection may be determined. To facilitate the diagnosis, blood examinations may become needful. These may determine the presence of morbid products or a change in the normal relation between the white or red blood corpuscles.

The value of leucocytosis in determining the presence of suppuration is not altogether fixed, but within certain limitations it aids materially in diagnosis. In this connection it should be remembered that hemorrhagic infarctions may eventuate in suppuration, as is frequently witnessed in cases of ectopic gestation. While these inflammatory and degenerative changes may be induced by chemical agents, or external causes including traumatism, it should nevertheless be remembered, that, clinically considered, they are usually due to infection. Nowhere in the whole range of medicine is prompt and accurate diagnosis more to be desired, as on it grave consequences depend. It has been somewhere stated, that the risk of pus accumulation in these organs constitutes greater danger than does operation for its evacuation. This rule may not apply to old walled off pus cavities, the contents of which have lost their infective quality, but must be regarded as logical and conservative declaration.

It must, however, be admitted in the light of experience, that accurate diagnosis is not always possible. This view is enforced by the frequency in which pus, or other products of infection are found within the pelvic viscera, when operations are done for other well defined conditions. One of the conditions very frequently met with, is the extension of gonorrheal inflammation from the vagina to the fallopian tubes and on to the peritoneum, thus inducing grave lesions and putting the patient in jeopardy. The presence of gonococcus in the vagina may clear up a doubtful di-

agnosis in tubo-uterine inflammation. In fact the neglect of these cases opens up a melancholy chapter in pelvic inflammation, leading not infrequently to invalidism and death. Whether early treatment of gonorrhea in a female will with certainty preclude the danger of such complications is a matter of doubt. Certainly no case with its characteristic symptoms should be allowed to go far without active interference. That the presence of the *bacillus coli communis* is the proximate infective factor in appendicitis there is no question, and that lack of prompt and radical interference, has resulted in a fearful mortality is the opinion of those well able to judge, equally certain. While it is true that not all cases of appendicitis demand operative interference within thirty or thirty-six hours after the onset, I am convinced that the mortality attending early operations bears but a small ratio of fatalities, to those which attend operations done at a later date. *Apropos* to this, it may be stated with entire confidence, that the freezing method adopted by so many practitioners has like opium tended to obscure the gravity of the situation and eventuated in a largely increased mortality; and it is greatly to be deprecated that this erroneous notion has found such general acceptance. One rarely hears of grave consequences following a too early operation of appendicitis. Of course this rule is not presumed to apply to cases of recurring appendicitis which should be operated on during quiescent intervals when possible, nor to cases seen after a period of four or six days in which the conditions of the individual case and the surroundings of the patients much determine the course to be pursued. The question of perforation of the intestinal tract and the escape of the intestinal contents into the peritoneal cavity is entitled to far more consideration than it has heretofore received. Among such perforations are those attending typhoid fever with perforation most frequent in the illeo-cecal region.

The theory has been promulgated that the primary risk in this form of perforation arose from shock incident thereto, and therefore it was unwise and irrational to attempt surgical interference earlier than 12 hours or until after recovery of the shock had intervened. That there is of necessity more or less shock attending the perforation, there can be no question, but that the serious consequences are due principally to blood reaction incident to resorption by the peritoneum is doubtless the correct explanation; I therefore believe that the plan of waiting twelve hours for reaction to take place is more honored in its

breach than in its observance and at variance with sound principles. By this it is not to be inferred that every case of perforation and typhoid should be operated upon immediately, but that the depression attending the perforation should not prove an insuperable barrier thereto. Prompt interference to obviate the paramount danger of the reabsorption of the biotic products is clearly indicated.

Perforation without operation being almost of necessity fatal, there would really be very little to regret if the patient did not survive the operation. In these cases, the classic preparation of the patient for laparotomy may well be disregarded. If the patient is depressed and the vitality low do not remove the patient from the bed to the operation table, but operate in bed after having thoroughly stimulated the patient, and sterilized the field of operation. Such procedure will minify the risk of the operation and increase the chances for recovery.

In striking contrast with the gravity of the situation found in the last two classes of patients is that of another infection of the intra-peritoneal surfaces, viz.: tuberculosis. Paradoxical as it may seem, a simple abdominal incision providing a means of evacuating the serum usually present, and allowing the air to come in contact with the peritoneum without drainage, eventuates in prompt recovery. Should the deeper sub-peritoneal structures, most often the uterus, fallopian tubes or omentum, become ulcerated, temporary drainage may be advisable. In my own experience I have never met with a case in which drainage was deemed advisable. There is little doubt that this form of tuberculosis too often escapes detection. Another risk of infection already mentioned arises from traumatic injury externally applied over any portion of the peritoneum as is seen in rupture of the intestines, liver, spleen or other viscera and from hematomas incident thereto. Great watchfulness is required under these conditions to detect the earliest signs of infection.

If prolonged shock follows a blow or contusion of the abdomen, exploratory operation may be required for diagnostic purposes, or to anticipate the ravages of infection.

The hematomas incident to extra-uterine pregnancy and other causes fall within this category. Hematomas which do not become organized are likely to end in infection.

Time fails to touch on the matter of puerperal sepsis—one of the most frequent forms of infection met with.

Medical treatment of these infections has its

sphere, but its limitations are painfully apparent. In the less serious cases nature's effort, with the aid medicine affords, is sufficient for the relief of the patient. Resort to general tonics, and stimulant treatment with thorough alimentation meets the indications. Unfortunately no specific for these blood infections has been found. Whether the use of formalin solutions injected into the circulation, will in septicemia prove more efficacious than Koch's remedy for tuberculosis remains to be seen. It is devoutly to be hoped that some specific may be found which will destroy these poisons without injury to the human organism.

Until science furnishes some specific for the graver form of these infections, whether chronic or acute, we must rely upon surgical interference, whenever the poison can be located and its causes removed. Finally it may be confidently stated that in the light of experience, both from the pathologic and clinical standpoint, the hesitation and delay so often witnessed in both acute and chronic cases is greatly to be deprecated as irrational and hazardous, and has resulted in the sacrifice of many lives.

263 Hancock St.

REGIONAL TUBERCULOSIS.*

BY F. E. LAMBERT, M.D.,
Jersey City, N. J.

Tuberculosis is an infectious disease caused by the action of a specific organism—the tubercle bacillus. The truth of this statement has been so abundantly proven by the labors of Koch, Baumgarten and other investigators, "that no other belief in the domain of pathology can be regarded as more securely established." The discovery of the tubercular bacillus by Koch in 1882 inaugurated a new era in our conception of the cause, and the most promising curative measures in the treatment of this terrible disease, so aptly termed "The great white plague."

The tubercle bacillus is a non-motile, parasitic, aerobic, rod-shaped organism, one-half the length of a red corpuscle. It is distinguished from all other bacteria, *except that of leprosy*, in its ability to retain the stain of the alkaline solution of the aniline dyes after treatment with acids. It is found in all tuberculous lesions. It fulfils Koch's circuit:

1. It is found *only* in tuberculosis.
2. It is capable of cultivation outside the body.

* Read at a meeting of the Hudson County, N. J., Medical Society, September, 1902.

3. Inoculations from these cultures produce the original disease in which the bacillus is found.

4. This circuit can be indefinitely prolonged.

Progress in medicine and surgery has to-day placed within our power the effectual means of combating this most formidable disease of mankind from the ravages of which no race is exempt. It is no respecter of persons—it visits the palace as well as the hovel.

No one can look upon the pale, shrunken face of the tubercular child without a feeling of sympathy, an awakening of a determination for more rigid application of scientific treatment.

The advance in medicine and surgery has made it possible, through the wisdom of the physician and skill of the surgeon, to pilot the tubercular victim through dangerous channels to the desired haven of health.

There is no part of the body exempt from invasions of the tubercle bacillus. The importance of an early recognition of the insidious onset should be borne in mind. Recurrent attacks of laryngitis may be the sounding of the first alarm. Pain in the region of the cricoid and arytenoid cartilages is an early symptom. The incipient pain of a tubercular joint is often mistaken for rheumatism.

It behooves us, therefore, to be ever on the alert, to make an early diagnosis. "An ounce of prevention is worth a pound of cure." He that is imbued with the spirit of prevention of disease is the prototype of the highest sentiments of our noble profession.

We know that the sputum of consumptives is the main source of infection. The transmission of bovine tuberculosis to man is yet in doubt.

Tuberculosis is more than twice as common in the negro than in the white, and still more prevalent in the Indian. I am informed by W. T. Thompson, physical director of the Carlisle Indian School, that forty per cent. of the Indian boys and girls develop one or more varieties of tuberculosis, probably due to giving up their outdoor life for close confinement in poorly ventilated buildings.

The avenues of infection are the bronchial and mesenteric glands. Wounds of the skin furnish a route by which infection can take place. Heredity, as a causal factor, is not accepted, but there may be a predisposition to disease or a general lack of resisting power, as for example, a proneness to bronchitis and scrofula.

It is said one-seventh of the human race die from tuberculosis. It is very prevalent in the West Indies and the South Sea Islands. Toward

the poles it is rare. Altitude is a more potent factor than latitude. Mountainous districts have a low death rate.

It is interesting to know that in the experiments of Strauss, of placing plugs of cotton in the nostrils of twenty-nine hospital attendants and nurses, in nine of the twenty-nine cases the plugs contained tubercle bacilli and proved infectious to animals.

In all probability, the infection is conveyed through the air, not so much by the air exhaled by tubercular patients, as by the air charged by the bacilli or spores arising from the dried sputa. It can be transmitted through the medium of meat and milk of tuberculous animals. Carelessly handled dressings are a medium of infection. The site of first infection becomes the focus of granulating inflammation that spreads at the periphery, while the centre undergoes caseous degeneration. From these points the bacilli invade the lymph glands.

Age influences the disease. Gland tuberculosis is prevalent among children. Tuberculosis of the skin, bones and joints occurs more often between the ages of fifteen and twenty-one.

Tubercular tissue somewhat resembles granulation tissue. It is composed of a basement substance, which is delicate and finely granular and contains round and oval nuclei. This basement substance has a reticulated arrangement, and in spaces of the reticulum are nucleated cells. There may be present the large nucleated bodies called giant cells. These tubercles may undergo two forms of degeneration, cheesy or sclerotic.

Prophylaxis places within the power of every physician the strongest weapon of suppressing tuberculosis. Cleanliness is not sufficient. Asepsis and antisepsis are absolutely necessary to cause the destruction of the bacillus. The sputum is the culture soil and contains colonies of the tubercular bacilli.

In children, catarrhal conditions should receive prompt attention. Mouth breathing should arouse the suspicion of the physician and all adenoids should be removed. Beds and bed-clothing should receive a sun-bath every day; no shades are preferable; blinds and windows should be open to let the air and sunlight penetrate every part of the room. An uncarpeted floor is imperative. Instruct your patient regarding his habits, and the methods by which the bacillus is conveyed into the system, and especially the contagiousness of the disease. Flugge was probably the first to consider the dissemination of tubercle bacilli. It is not proved that inhalation of

dried sputum can produce tuberculosis in a healthy man. The fine particles of spray held in the air after coughing float about the room, carried by air currents. Flugge regards this spray to be the true cause of infection. The swallowing of the sputa is a dangerous procedure, and all dejecta should be sterilized. The patient should be instructed to keep the mouth closed during a spell of coughing. The sputum cup should be ornamental as well as useful, cheap and of light construction. It should be four inches in width and three inches in height, the pocket or inside cup made of aluminum and fitting loosely. I would also suggest a pocket sputum cup, but as consumptives are sensitive to comments on their condition, it would be unpopular.

The symptoms of this dreaded malady in the incipient stage are many times misleading. Tubercular ear inflammations may be taken for simple otitis media. Catarrhal conditions of nose, throat, tonsils, larynx and bronchial tubes are often wrongly diagnosed. The pain of the tubercular bone or joint and tubercular choroiditis may be treated as rheumatism; while tuberculosis of the skin is often mistaken for eczema.

The treatment resolves itself into medical and surgical. From the physician's standpoint, the situation seems hopeful, if the glowing testimonials of serumtherapy, X-ray and new drugs can be sustained.

I was called last year to see a tubercular patient who had been through a course of drug treatment, administered by the attendant of a quack institute. He was in a pitiable condition, literally being drugged to death. Oliver Wendell Holmes' caustic aphorism came forcibly to my mind: "If all the drugs were cast into the sea it would be better for mankind, but worse for the fishes." I stopped all medication, except strychnine, supportive treatment and serumtherapy. Under this treatment he lived six months a fairly happy existence.

To aid one in the diagnosis of the incipient stage, we have the reactive symptoms of tuberculin. Like the Widal test in typhoid, it may fail in some cases.

Let us look upon the curability of this disease with more hope, with an optimism to conquer even desperate cases. I believe many patients succumb to the disease due to the physician's half-hearted, dilatory treatment. Remember the tendency of all disease is toward recovery. There are on record cases of spontaneous cure, and some acute cases get well and become rugged and vigorous, with no evidence of the disease left.

Could we know of many cases of tuberculosis, which have been treated for other diseases, that have recovered, we would have more faith in its curability. Climate and change of environment need our consideration in the treatment for the amelioration or cure of tuberculosis. Pure, dry air is indispensable. We cannot adhere to iron clad rules in the treatment of any case. Individualize your patient. Know whether the stage of the disease would be benefited by the change.

Maragliano contends that the tubercle serum obtained from the horse exercises a curative effect in man. I have used Paquin serum with gratifying results in several cases of pulmonary tuberculosis. Koch's tuberculin is known to be a product of the tubercle bacilli in a culture of veal broth, containing 1 per cent. of peptone and 5 per cent. of glycerine. Kaatzer reports forty-four patients treated with tuberculin, fourteen died, sixteen were cured, nine improved, while one remained under treatment. Those cases only were considered cured in which the symptoms ceased without relapse and tubercle bacilli permanently disappeared from the sputum. Percentage cured was 34.06. The beginning dose was 0.0001 gram, the quantity used per person was 1.535 gram. The duration of treatment was from six to fifty-two weeks. Great things have been said concerning creosote, beginning with small doses and increasing to two drams per day. Guaiacöl is better borne by the stomach, but it does not prove superior to creosote. Intravenous injections of ichthyol, phenol and cinnamic acid are tentative and not beneficial. Cod liver oil is only for the strong stomach, with little or no fever. It is best given in glycerine and cognac.

Care of the Skin:

Special attention must be given to baths and massage. The water at the beginning must be of a temperature of 80°, and gradually reducing to 55°, cold sponging every morning along the spine and chest, followed by brisk rubbing with a rough towel. Cough and night sweats are best treated individually, the drug best adapted must be learned by experience.

The citation of a few cases, treated medically and surgically, will be of some interest.

Case I.—A woman, aged 32 years, German born. The family history is negative. She always had enjoyed good health. Patient is well nourished.

In the Spring of 1896, the patient was seized with a sharp pain in the right knee. The onset was like a bolt from a clear sky. She had been

treated for rheumatism several weeks by another physician. I stopped all medicine, and immobilized the joint with Buck's extension and applied ice-bags. The patient slept that night for the first time in weeks. The improvement was gradual. Almost three months elapsed before the patient could walk with the aid of a crutch and cane. Dr. Willy Meyer, of New York City, was called in consultation and confirmed the diagnosis and treatment. The patient has had no recurrence of tuberculosis and does her own housework.

Case II.—A. H. F. Age, 18. History negative. Tubercular wrist. Joint immobilized, and Bier's method of congestive hyperemia effected a cure.

Case III.—J. G. M. Age, 15. Tubercular wrist.

The above treatment is likewise effecting a cure in this case.

Case IV.—B. S. M. Age, 48. Family history is negative. In 1896 the patient sought relief for a pain in the right testicle and cord. The organ was enlarged to about the size of a medium-sized orange. Tapping reduced it somewhat, but parts of it felt nodular. I told him that eventually it would have to be taken out. About one month ago the scrotum began to break down and form sinuses. I removed the testicle two weeks ago, and the wound has healed by first intention, except the upper angle, which has a healthy granulating surface. The patient gives no evidence of tubercular cystitis or involvement of the prostate gland.

Case V.—Lupus of the Nose: Age, 56. M. F. H. Negative.

Treatment, actual cautery, three sittings. Anti-tubercle serum was given t. i. d. internally. The above treatment resulted in a cure.

It is needless to say I have failed to cover all the ground of such a stupendous subject as tuberculosis. I hope this feeble effort will awaken new interest and strengthen your belief in the curability of this formidable disease.

Dr. Bevan (*The Journal of the American Medical Association*, Jan. 24, 1903) makes a plea for a wider application of surgical procedures to lesions of the stomach. He remarks that disappointing as is the surgery for malignant disease, it is to-day the only way of hope in these cases, the surgery of benign lesions having given brilliant results. In almost every community cases of ulcer of the stomach die from obstruction, perforation or hemorrhage, which could be saved by timely operative procedure.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

82ND ANNUAL MEETING, JANUARY 29, 1903.

The President, HENRY A. FAIRBAIRN, M.D., in the Chair.

There were about 225 members present.

The meeting was called to order and the minutes of the previous meeting read and approved.

REPORT OF COUNCIL.

The Council reported favorably upon the following candidates for membership:

Philip W. T. Moxom, Harvard, 1901.
Albert W. Griffiths, Harvard, 1901.
Edward Earl Wilson, P. & S., N. Y., 1900.
Henry Franciscus, L. I. C. H., 1888.
DeWitt L. Parker, L. I. C. H., 1892.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the Council were declared, by the President, elected to active membership:

Wm. H. Happe, L. I. C. H., 1901.
P. J. Mooney, N. Y. University, 1895.
Wm. Linder, Bellevue, 1896.
John G. Williams, Yale, 1900.
E. S. Hodgskin, P. & S., 1893.
George E. Deely, P. & S., 1900.
Anna C. de la Motte.

APPLICATIONS FOR MEMBERSHIP.

The following applications for membership have been received:

F. B. Cross, 131 Seventh Ave., P. & S., N. Y., 1900. Proposed by James P. Warbasse; seconded by W. S. Hubbard.

James Ellard, 161 Montauk Ave., Bellevue, 1892. Proposed by E. A. Parker; seconded by Membership Committee.

John J. Fitzgerald, Kings County Hospital, Albany, 1886. Proposed by Wm. Browning; seconded by Wm. C. Woolsey.

Wm. Schroeder, Jr., 513 Eleventh St., L. I. C. H., 1901. Proposed by W. C. Schroeder; seconded by E. H. Bartley.

Calvin L. Harrison, 128 Montague St., P. & S., 1887. Proposed by C. D. Napier; seconded by Wm. S. Hubbard.

R. C. Halcomb, L. I. C. H., 1896. Proposed

by A. A. Hussey; seconded by W. A. Fairbairn.

Paul M. Pilcher, P. & S., 1900. Proposed by J. P. Warbasse; seconded by W. A. Sherwood.

John A. Quell, P. & S., 1902. Proposed by R. J. Morrison; seconded by E. F. Parker.

Peter Hughes, 467 Bedford Ave., N. Y. Univ., 1879. Proposed by B. Onuf; seconded by H. H. Morton.

Edward J. Blake. Proposed by L. S. Pilcher; seconded by J. A. Blake.

The Secretary made a report, which was, on motion, duly carried, accepted and ordered placed on file.

The Treasurer made his annual report. On motion, duly carried, the report was accepted, with the adoption of the recommendation therein contained.

Reports from the following committees were read and accepted and ordered placed on file:

Membership.
Directory for Graduate Nurses.
Entertainment.
Legislative.
Public Health.

Dr. De Long made a motion, which was duly seconded, that the recommendations of the Milk Commission (Committee on Public Health) be adopted.

Dr. Sheppard moved to amend the previous motion by adding a vote of thanks from the Society to the members of this Commission for the careful fulfilment of their arduous duties, to say nothing of the financial responsibilities they have assumed.

Dr. Jewett moved to amend further, that the Society reimburse the members of the Milk Commission for the money they have expended in carrying on the work of the Commission. Seconded. The motion with the amendments were carried.

The Directing Librarian made a report, which was, on motion, duly carried, accepted and placed on file.

Dr. Browning moved that the suggestion of the Directing Librarian for the formation of an auxiliary committee to aid the work of the Library to be formed of such members of the Society as are willing to contribute a certain fixed sum of money each year be adopted. Seconded and carried.

The President announced additional gifts to the Library Stack Fund, making the sum total to date \$7,000.

The report of the Trustees was read, and on motion, duly carried, accepted and placed on file.

WM. S. HUBBARD,
Secretary.

BROOKLYN PATHOLOGICAL SOCIETY.

HENRY G. WEBSTER, Editor.

436TH REGULAR MEETING, DECEMBER 11, 1902.

PROGRAM.

Tuberculosis of the Mastoid, Dr. J. E. Sheppard.

Accumulation of Gas in Acute Suppuration of the Middle Ear, Paper, Dr. H. A. Alderton.

Epithelioma of the Auricle, Patient, Dr. H. A. Alderton.

Paralysis of the Facial Nerve, from Caries of the Mastoid Process, Patient, Dr. H. A. Alderton.

Nasal Polyp from a Child of Seven Years, specimen, Dr. S. H. Lutz.

The President, Dr. Archibald Murray, presided. There were about 25 members present.

TUBERCULOSIS OF MASTOID, SPECIMEN AND HISTORY.

BY J. E. SHEPPARD, M.D.

The patient, a girl aged nine years, was first seen Aug. 20, 1902, in consultation with Dr. Harrington.

Previous history: Discharge from left ear since last November, before the original mastoid operation, following which the wound did not heal. Another operation,—curettage, etc.—was done in April. Still the wound did not heal.

Present condition: Extremely anemic, the result of a severe and prolonged nose bleed a short time before. About $\frac{3}{4}$ of an inch behind the line of insertion of the auricle a granulating surface, oval in shape, about $1\frac{1}{2}$ inch vertically by $\frac{1}{2}$ inch horizontally, about level with the surface of the skin. Probe comes down on a large area of bare bone. Auricle slightly pushed out from the head. Canal filled with pus and much narrowed at its inner end by a drooping postero-superior wall, which hides the membrana tympani, so that the only knowledge obtainable concerning it is that it was perforated. Accompanying the anemia, and emphasizing it, were several petechial spots on the body, arms and legs, indicating a badly disorganized condition of the blood. Advised vigorous building up measures before operating.

Was next seen Sept. 26, when her general condition showed moderate improvement. Still some petechial spots, but for a few days past there has been some elevation of temperature, with loss

of appetite and so forth, accompanying a decidedly worse appearance of the mastoid wound. There was more of a fungous appearance to the granulating mass, some odor; in short, the general impression produced was that there was going on a process of decided septic absorption. Above the wound and near the auricle was a fresh periostitis and a sinus leading down to recently uncovered bone. In spite of the general condition being far from satisfactory, prompt measures seemed indicated, and operation was undertaken the following day.

From the wound a large amount of unhealthy tissue was curetted, a large opening was found in the bone leading down to the dura, not, so far as could be determined, to the antrum, which was found with great difficulty, and was filled with the same sort of soft tissue; this tissue extended upward and backward to a large sequestrum, under which, between it and the dura, was found a moderate quantity of free pus. On working downward and backward, another sequestrum was found in the region of the sigmoid sinus, which being uncovered was found apparently healthy and pulsating normally. Extending thence downward and backward into the cerebellar fossa was found quite a large quantity of this same unhealthy-looking soft tissue, resembling slightly in color and consistency gray cerebral substance. The child's condition becoming bad, about two pints of normal salt solution were injected into the bowel, the wound cleansed as much as possible, granulations quickly curetted from the canal and tympanic cavity, and the usual dressings applied.

During the operation the incus, with one process carious, was unintentionally removed.

The whole impression produced by the conditions found was that we had to do with a malignant growth. Specimens of the soft tissue and bone were sent to Dr. Archibald Murray for microscopic examination and a guarded prognosis given. The case seemed to do fairly well until the morning of the 30th, three days later, when oozing of blood began from the left nostril, which, with brief intermissions, and in spite of every effort to stop it, continued until, and was practically the immediate cause of, death that same afternoon.

Dr. Murray reported the soft tissue and the bone to be typically tubercular, and sections were shown at the meeting.

A brief review of the bibliography of the subject yields the following:

Haberman: "Concerning a tuberculosis of

the temporal bone, primary or by way of the blood channels, there are as yet no certain observations. Origin mostly by way of the Eustachian tube and tympanic cavity to the mastoid. In cases where the tympanic cavity remains free the course is probably through the blood vessels. Cases of Wanscher and Schwartz seem of this kind, though it is not always easy to prove freedom of the tympanic cavity from the infection."

Sieberman reported a case of primary tuberculosis of the mastoid. Long duration leads to extensive caries of the bones with formation of sequestra.

Schwartz reports a case in which tuberculosis of the mastoid extended to the parietal and occipital bones, and yet recovered by operation.

Zaufal reports a primary tubercle in the pyramid, Schwartz one in the internal auditory meatus, Hessler one in the membrana tympani. Stacke a case of myringitis tuberculosa.

Walb says: "In the first place are already long known the carious processes which rather frequently, especially in children, expend themselves in the temporal bone and which cannot be suspected without considerable involvement of the membrana tympani and its adnexa. Tuberculous caries, as most frequently observed in children, produces early those known focuses which form in the center of the bones at chosen points, where through the formation of tubercular tissue, destruction and loosening of bone occur. These focuses are usually multiple, may coalesce, and destroy large areas of bone and be thrown off. The beginning may be latent, but soon usually involves the tympanic cavity structures. Parts most often affected are the mastoid process and tympanic bone, but the pyramid may be involved. They may be bilateral. Facial paralysis is frequent. Cochlea or tympanic ring may be thrown off entire. In adults it may occur as a part of an extensive tubercular process."

Burnett in his own treatise says that it is worthy of remark that the dura is never invaded by the new growth. It is only pushed ahead of it toward the brain. In a later text-book he says: "Tuberculous disease of the temporal bone may terminate in extensive destruction of the mastoid, lower part of the squama, petrous pyramid, and partial thrombosis of the superior petrosal and sigmoid sinuses with tuberculous disease of the sphenoid and occipital bones (Barnick)."

Hovell says general tuberculosis and tubercular meningitis are specially favored by chronic ear suppuration, on the basis that if pus collects in a

bony cavity, absorption is facilitated and consequently supervention of miliary tuberculosis.

Dench says: "Primary mastoiditis may be a manifestation of a tubercular diathesis."

Barr says: "No doubt many of the cases of so-called caries of the mastoid process, especially in children who have at the same time enlarged lymphatic glands in the neck, are really tubercular disease of the mastoid and petrous portions of the temporal bone."

The tubercle bacillus is found in certain purulent middle ear diseases, being often associated also with extensive tubercular infiltration of the mastoid and petrous portions of the temporal bone. In the frequency of tubercle in the middle ears of children, intimately connected with, and close to, the base of the brain, may we not have an explanation of the otherwise mysterious preference of tubercle for the base of the brain?

DR. J. C. KENNEDY: I should like to ask Dr. Sheppard what the family history was in that case, and also what the cause of the nose bleed might be?

DR. J. E. SHEPPARD: It seems to me that the cause of the nose bleed was the utterly disorganized condition of the blood—the same thing that gave rise to the purpuric spots, and which originally made me feel like not operating until the general health was better. I think there was no coagulating power left.

As to the family history, I believe the child's mother died of tubercular trouble during the first few weeks of the child's life. The father is living, a large, healthy man, and all the rest of the children are alive, brothers and sisters, four or five of them, and apparently healthy. As to the mother's relatives I know nothing.

DR. S. H. LUTZ: I can answer part of that question, because the stepmother told me, to the best of her knowledge there was no disease of any kind in either the father's or her family.

Dr. Collins reported a case about one and a half years ago of a tubercular mastoid, which ultimately died within six or eight weeks of tubercular meningitis.

DR. J. E. SHEPPARD: The case of tubercular meningitis recalls to mind a case of last winter, in which a young girl of 14 or 15 was operated on for mastoid trouble, and the two larger ossicles removed. The child failed to do well, developed, as we discovered subsequently when looking for a brain abscess, a serious meningitis. No tubercle bacilli were found. The serous meningitis was believed by all who saw it to be of a tubercular nature, and the child was expected to die. To the

surprise of all the child has apparently recovered, has put on 20 to 40 pounds, and is a healthy and robust girl to-day. Dr. Browning, who saw the case with me, tells me, "Well, look out, something will come later." He thinks she will yet develop a tubercular meningitis. The child at present is practically well.

DR. J. E. SHEPPARD: In a general way there are a great many cases of mastoiditis that get well without operation. As to cases of tubercular mastoiditis getting well without operation, my experience with such cases where they have been recognized, has been limited to cases where there was distinct general tuberculosis. I always dislike to operate in such cases, and do not do so if I can help it. I have been obliged to operate in a few cases simply to give drainage, prolong life, and give the patient some relief from pain. I have never seen advanced cases get well.

DR. A. MURRAY: When this material reached me I thought it was sarcomatous, but after putting it through it proved to be tubercular bones.

DR. H. A. ALDERTON: I think this case well illustrates the points made by McEwen, that this disease occurs mostly in young children, and the tremendous destruction that takes place. I do not think the statement of Burnett is well borne out, that the dura and meninges are not affected by extension. I think this does sometimes occur.

A case just comes to mind, perhaps of extension to the dura. Dr. Sheppard had a case at the Eye and Ear Hospital a number of years ago, in which he did a mastoid operation, and after the operation there was a low temperature, which kept up for quite a little while. The child died. A post mortem was held, and there was found a tubercular condition of the meninges.

ACCUMULATION OF GAS IN ACUTE SUPPURATION OF THE MIDDLE EAR.

BY H. A. ALDERTON, M.D.

On the morning of September 18th, 1902, I was called to see Mrs. —, the wife of a brother practitioner, and was given the following history: My patient was just recovering from an attack of tonsillitis and had the evening before, while blowing the nose, felt something give in the ear. She soon developed earache, which was controlled for one and a half hours by a hot ear douche, ordered by her husband. After this time the ear began to ache uncontrollably; the pain persisting throughout the night notwithstanding the administration of two hypodermics of morphine, one-quarter of a grain each.

Examination on the morning of the 18th showed some tenderness around tragus and anti-tragus, both osseous canals congested; the dermal layer of the right membrane swollen, dull and light gray with underlying congestion; the left membrane intensely congested and slightly bulged, with beginning bleb-formation on the surface. Pulse 72 and intermittent at times; temperature 99° F. Patient was worn out by previous sickness and suffering. Ordered tablet every hour of tincture of aconite, 1 minim, sulphate of morphia, gr. $\frac{1}{50}$, tartar emetic, gr. $\frac{1}{50}$, and powdered ipecac, gr. $\frac{1}{4}$. Also the hot douche to each ear every one or two hours, according to indications; the canals to be dried out carefully after. Antiseptic spray to the naso-pharyngeal passages every four hours. Hot-water bag to the ears in the intervals between douchings, if soothing to the pain. Hypodermic if necessary.

At 7 P.M. of same day, nurse reported increasing pain in both ears, temperature 100, pulse 84-92. Examination: Blood blebs on left membrane and on adjacent posterior osseous canal wall, membrane somewhat more bulged; dermal layer of right membrane lifted by serous exudate and membrane slightly bulged. Pain worse in left ear and throbbing was present. Nitrous oxide gas was given by Dr. Brinsmade, Drs. McCorkle, Palmer and Clarence Hyde being present. Both membranes were thoroughly incised in the posterior half. Immediately on incision of the left membrane a quantity of sero-purulent secretion, possibly also sanguinolent, was forcibly propelled from within the tympanic cavity out through the perforation by gas under pressure, to the accompaniment of an explosive noise distinctly heard by Dr. McCorkle at a distance of eight or ten feet. The fluid particles were driven out so as to spatter the speculum and the hand of the operator. It was a question whether the right membrane had not already perforated by a minute opening, as there was some serous exudate in the canal. Directions were left to dry out both ears with aseptic cotton when necessary, during the night, the attempt being made to allay pain and secure sleep by a hypodermic of a quarter of a grain of morphia in combination with a one-hundred-and-fiftieth of a grain of atropine. Patient passed a bad night. Discharge was at first scanty and bright red, afterwards becoming copious and sero-purulent.

On the morning of the 19th, pain was still very severe in the left ear, better in the right. Discharge free. Complained of headache. Pulse 78, temperature 99.1°. Ordered one-tenth of a grain

of calomel every hour and douching of the ears with a 1:5000 bichloride solution every two hours.

In the evening, pain had increased, pulse was 82, temperature 99.4°F. Examination showed left osseous canal intensely congested posteriorly and superiorly with a large blood bleb on the surface; membrane also intensely congested and a bulging Shrapnell's membrane. The mastoid was tender, especially over the antrum. The same conditions to a lesser degree existed on the right side. Under nitrous anesthesia, an internal Wilde's incision was done on both sides, the knife being carried well up into the attic and out along the posterior-superior wall of the osseous canal, down to the bone.

That night the patient required two hypodermics of morphia, but obtained five and three-quarter hours sleep from their use.

The morning of the 20th found the patient much more comfortable. The calomel had acted well and the douching had given relief. Pulse 90, temperature 98.6°F.

About three o'clock in the afternoon, pain returned with increased severity and temperature began to appear, together with some pain behind the left ear. Pulse 90 to 96, temperature 100.1° to 104°F. The left mastoid was quite tender to deep-seated pressure over antrum. Right ear seemed much better. Codia in quarter grain doses had to be given every three hours during the afternoon and two hypodermics of morphia in quarter grain doses were necessary during the night. Operation decided on for the next morning. The ice-bag had been tried over the mastoid but failed to give relief.

Operation at 9 A.M. on the 21st with the assistance of Drs. Palmer, Brinsmade and Shattuck, using nitrous oxide gas. The outer table of the mastoid process was normal. The cellular structure was greatly congested and friable. Granulation tissue under pressure filled the antrum and a large cell lying below and to the outside of it. The upper half of the wound through the soft tissues was sutured.

From now until the 25th, the temperature gradually fell from 100.2°F to normal; discharge from right ear gradually increased with periods of lessening, either codia or morphia had to be given from time to time, especially at night, and cathartics were also administered. Pain from time to time in the right ear, which on the 23rd at times extended up into the head. The tenderness over right mastoid gradually increased until the 25th; pulse 78, temperature 98.1°F.

On the 25th of September, operated on the

right mastoid, using the same anesthetic and assisted by the same physicians. Found the same foci of infection in the antrum and the large cell below and outside, but these cells instead of being filled with granulation tissue now bubbled over with pus. The cellular structure softened.

Since the time of the operation, the patient has progressively improved and the hearing in both ears has practically returned to normal; the whisper being heard 45 feet in a noisy city house. The wounds are nearly healed. Now, gentlemen, it was not as a report of a case of double mastoiditis that I wished to present this paper to you this evening, though I cannot resist the temptation of calling your attention to one aspect of the case. The family physician often feels dubious when an ear man does a mastoid operation, and does not empty a pus cavity; the most truly conservative aurist is he who tries to operate before any large collection of pus has taken place within the mastoid cells. Three days was time enough and more than enough in this case to mark the advance from the comparatively slight destruction in the left mastoid to the purulent disintegration existing in the right mastoid cells.

The greatest interest in the reported case lies in the fact of the existence of gas under pressure within the tympanum and the bearing this has upon the development of mastoid inflammation. This case is the second of the kind that has come under the writer's observation; both were in private practice and both came finally in a very short time to operation on the mastoid. In neither case was the condition looked for, and, therefore occurring in private houses, a bacteriologic examination at time of incision of the tympanic membrane was not feasible. The gas was evidently the product of bacterial development, possibly from an otherwise innocuous bacterium, such for instance, as the *Aerogenes capsulatus*; or it may have been produced by an extraordinarily virulent bacterium. If the latter, the early and extensive involvement of the mastoid is easily explained. But if the gas is the product of an inoffensive bacterium existing in a mixed infection, then we see, how it acts mechanically to disseminate infection early and far. The Eustachian tube being closed, the only escape the gas has is into the mastoid antrum and cells, carrying along with it the exudate thrown out within the tympanum; this gas and the exudate containing the more pathogenic bacteria.

As a result of this reasoning and of clinical observation, I would state that I believe the presence of gas, within the tympanum at the time of

a primary incision of the tympanic membrane for an acute middle ear abscess, to be a symptom indicating the probable development of mastoid empyema and the probable necessity for early operation on the mastoid process.

EPITHELIOMA OF THE AURICLE.

DR. H. A. ALDERTON: The first patient is one I first saw in my service at the Kings County Hospital, with a marked epithelioma involving the tragus and the adjacent helix, and extending into the canal—a well-marked condition. The man was very anxious to save part of the auricle, so as to prevent deformity. I took a core of tissue out, extending down to the osseous canal, up to a point about three-quarters of an inch around the growth. He had the X-ray applied, which produced a severe dermatitis with multiple abscesses, but he recovered from this, and is at present in a very good condition and with a patent canal.

PARALYSIS OF THE FACIAL NERVE FROM CARIES OF THE MASTOID PROCESS.

DR. H. A. ALDERTON: The next case was one referred to my care by Dr. Wood. She had had a suppuration for quite a little while, and developed two weeks before I saw her, facial paralysis of the same side. I immediately recommended operation, although there were no mastoid symptoms. There was bare bone in the posterior canal wall. With Dr. Shattuck's help I operated and found a sequestrum overlying the facial canal. A radical operation was performed. The patient has practically recovered from the facial paralysis, and the last time I saw her the middle ear condition was entirely healed. I sutured the wound after the operation, and there is practically no scar. I would state that after operation the patient had electricity applied.

Case II.—About four weeks ago a case similar to this as to facial paralysis was recommended to me, with the typical symptoms of mastoiditis. A facial paralysis developed two days before I saw the patient, and another thing of interest was the fact, that she was troubled with herpes on the same side of the soft palate and tongue. Herpes, as we know, occurring in middle ear conditions, if suppurative, has taken place in cases that have been fatal, *i. e.*, the occurrence of herpes with a suppurative condition of the middle ear has so far been a precedent to early death from meningitis.

In this patient, after examination, I found the

typical symptoms of mastoiditis—great tenderness over the mastoid, swelling under the tip, tenderness greatest over the tip, swelling pyramidal I syringed some cerumen out of the ear and found the drum normal, but that did not mitigate against the diagnosis. I operated on the patient the same afternoon, and except for congestion, found no evidence of mastoiditis. The patient's mastoid wound has done well—the facial paralysis is just a little clearing up at present, four weeks after operation, and she is beginning to get motion. I am rather inclined to think now that the mastoid did not have anything to do with the condition, even though we had the symptoms there.

After the operation the pain disappeared from the mastoid, and localized itself in a tooth on the same side, and I sent him to a dentist to have the tooth fixed.

OSSICULECTOMY FOR CARIES.

DR. H. A. ALDERTON: I brought a specimen here to-night illustrating the good effects of ossiculectomy. This boy, fifteen years old, had otitis media for years in both ears following scarlet fever. On examination I found the drums presented the appearance shown here on the card (illustrating)—practical total destruction of one and kidney-shaped perforation of the other, with a polyp hanging from the end of the hammer on one side, and caries of the bone on the other side. He also had adenoids. I recommended him to go to the hospital, and I operated on him the next morning, removing the adenoids as well.

His hearing on the right was $2\frac{1}{4}$ feet for the whisper; left, 4 feet. I removed from both ears the carious malleus and incus. There was a great deal of fibrous tissue over the bones on one side. I cut that away, and, as I thought, freed it; with the mass of fibrous tissue came away a carious stapes without my using any force.

Out of the left ear I took out the carious hammer and incus. Since then the boy has had practically no dizziness. He got up to-day for the first time, and he has had no reaction. There has been no discharge. I tested him to-day, and in both ears he hears me 15 feet (the diagonal distance in the room).

HEMATOMA OF AURICLE.

DR. W. S. SHATTUCK: Two years ago this man came to the Eye and Ear Hospital. He had

a hematoma from an injury received in a prize fight, and two or three times since then has received additional injury to the same auricle. The auricle simply shows a chronic inflammation of the cartilage—a thickened condition.

DISCUSSION OF CASE: EPITHELIOMA OF AURICLE.

DR. J. E. SHEPPARD: When were the X-rays applied?

DR. H. A. ALDERTON: Immediately after the operation. They were anxious to try to prevent recurrence.

DR. J. E. SHEPPARD: The case was rather young for an epithelioma.

DR. A. MURRAY: Any microscopical examination made?

DR. H. A. ALDERTON: No; the case was seen by Dr. Winfield, and referred to me by him.

REPORT OF CASE: NASAL POLYP FROM A CHILD OF SEVEN YEARS. SPECIMEN.

DR. S. H. LUTZ: There is not anything remarkable about this specimen except one thing. The reason I kept the specimen was, it was rather a large polyp for a very small child. The child was only seven years old, and it is rather unusual to get a large nasal polyp in a small child. Nasal polyps do not appear until later along in life usually.

REPORT OF CASES: UTERINE AND RECTAL POLYPI.

DR. H. A. DEFORD: The word "polyp" brought to my mind two cases, which I have had lately, that are somewhat interesting, although representing conditions existing at the opposite pole of the body.

A young woman came under my care some few months ago with a history of having had a continuous menstrual flow for the neighborhood of six months or a year. She was almost exsanguinated, and I expected to find in the uterine cavity an endometritis of considerable severity. She was an unmarried woman, and examination without anesthetic was painful and practically impossible. The patient was taken to a private hospital and given an anesthetic, and as soon as a speculum was introduced, it was found that dangling from the cervical canal and practically occluding the outlet was a polyp about the size of a small cherry, with a long slender pedicle. I took hold of that with a pair of forceps and snipped it off, and her menstrual flow entirely

stopped. She made an uninterrupted recovery, and is now the mother of a boy, she having become married in the meantime.

Last week I had another case in a maiden lady. She came to me and said, for the last three months every time she had a movement of the bowels there was a considerable amount of blood discharged. I expected to find hemorrhoids present; examined her, and to my surprise, found there were no hemorrhoids. I introduced my finger into the rectum, and felt as far as I could to see if there were any internal hemorrhoids, and could find none. Just as I was about to terminate the examination, I felt something at the end of my finger, and asking her to bear down a little bit, I found a mass about the size of a marble dangling on a thread from the mucus membrane of the rectum. I hooked the end of my finger around it and it came down outside the anus without any difficulty; and there I found another polyp, which was removed, and was the source of this woman's hemorrhage. That I tore off with my finger nail, tearing it in two rather than cutting it, and her hemorrhage has entirely stopped.

The former case came to my mind in connection with the case of more recent occurrence. They were two little growths, neither of them more than one-half inch in diameter, that had caused anemia out of all proportion to the results you would expect to get from such conditions.

REPORT OF CASE: SECONDARY BLOOD CLOT FROM INJURY AT SITE OF WOUND AFTER MASTOID OPERATION.

DR. S. H. LUTZ: About a week ago I saw a boy I had operated on for mastoiditis last March or April. He had been struck on the side of the head on which he had been operated on, by a piece of iron in the shop where he was working. He came to me because his wound was all swelled up, and I found he had a blood clot, which had dissected the skin from the wound at the site of the old operation. It did not amount to anything, and has cleared up since then.

MEDICAL INSTRUCTION TO RAILROAD EMPLOYEES.—Authorities of the Jefferson Medical College have offered the various railroads entering Philadelphia a free course of training to their employees in first aid to the injured. Railroad officials have taken kindly to the suggestion and it is probable that a course of lectures by the staff of the College will be given to trainmen.—*Medical News*.

REGULAR MEETING OF THE PEDIATRIC SECTION.

January 9, 1903.

President, DR. WM. A. NORTHRIDGE, in the Chair.

C. LEGRAND KERR, Editor.

REPORT OF A CASE OF POST-DIPHTHERITIC PARALYSIS.

DR. KERR: This case is interesting on account of the complications. A little girl, two years and six months old, was taken sick with what was called "cold in head and sore throat" on October 9, 1902. The symptoms of nasal and pharyngeal discharge were very decided at first. She was given a chloride of iron mixture. Dr. Howe, who was called in on October 15, found the child greatly prostrated. Pulse 143, irregular, changing rapidly with any change of position; respiration difficult, apparently from a large amount of mucus in pharynx; temperature 103.2. Child restless and distressed; had taken food and drink only under compulsion during preceding forty-eight hours. Toxemia marked; pharynx and naso-pharynx filled with thick grayish mucus, with white membrane extending from naso-pharynx into the pharynx. Diagnosis, diphtheria. Treatment 2,500 units antitoxin; stimulants. Twelve hours later, temperature 100.3 rectal. By noon the following day, temperature began to rise; all symptoms exaggerated. Another injection of 2,000 units was given. Stimulation had to be pushed with vigor. There was marked difficulty on swallowing, and all fluids were brought back through the nose. For the following five weeks there was a slow, but steady improvement. November 18th she sat up in bed, drank and ate moderately well, but there was still some paralysis, with occasional regurgitation of food through the nose, slight cough and decrease of mucus. November 22d Dr. Howe called and found that since November 18th the patient had absolutely refused all food, and that only by the use of force could anything be gotten into the stomach and that in the struggle much was lost. The force used caused the child to draw food into the trachea. Dr. Howe then used gavage, but the attempt was not satisfactory, food returning back along the outside of the tube. The child's condition was now poor. The abdomen was retracted, and there had been no movement from the bowel in seventy-three hours. Pulse 138, irregular;

expectoration very profuse. Another attempt at forced feeding brought away by vomiting, a thick curd firmly formed, 5½ inches long and 1¼ in diameter. The patient was getting rapidly worse, and when seen in consultation with Dr. Howe and the father, on November 28th, we found the following condition: Pulse varying rapidly with slightest motion or excitement, from 126 to 145. Temperature 105. The quality of the pulse poor. Examination revealed an extensive bronchopneumonia. I advised the use of creasotal, increased stimulation, alternating rectal feeding and gavage and a pneumonia jacket. On November 29th the child grew suddenly worse, the respirations became very shallow and the trachea filled with secretion. The whole chest was then cupped. The gavage was stopped for a few hours and stimulants were pushed. Improvement from this time on was gradual but steady. For several days the respirations varied from 28 to 40, pulse from 112 to 150. The foci of infection in the lungs changed rapidly from one point to another, even when frequent examinations were made. January 9, 1903; it is still necessary to use gavage, but the paralysis is getting less each day; there is still inability to stand. There is present one small patch of consolidation on each lung, otherwise the condition is good. Slight murmur at cardiac apex. Child is violent in temper, even without provocation. In all other points there is a progressive gain.

Discussion.

DR. READ: I should like to raise the question as to the value of cultures, as a means of determining that the case is not apt to affect others. I recall a patient where the bacilli persisted eight weeks after the case was clinically well. Child was isolated, until parents took the law into their own hands, and allowed the child out. In reference to treatment in this class of cases, there is nothing better than strychnine and general tonics.

DR. HUTCHINSON: This case was an unusually severe one, and I believe that the initial injection should have been 4,000 to 5,000 units. The persistent mental conditions should receive care from where the fault lies, with the parents.

DR. BARTLEY: We certainly ought to have some test applied as to the virulency of the bacilli. It is a matter of record that 15 per cent. of all healthy children by a culture show the presence of the bacilli in the secretions of the mouth, and this without any illness.

THE BROOKLYN GYNECOLOGICAL SOCIETY.

Stated Meeting, Dec. 5, 1902.

The Vice-President, W. E. BUTLER, M.D., in the Chair.

REPORT OF CASE: PELVIC ABSCESS.

Dr. W. E. BUTLER: Patient, aged 29, virgin, was seen this afternoon in consultation. Family history fair, nothing of tuberculosis. Had always had irregular, scanty, and painful menses, usually with clots. Two years ago hysteropilepsy developed, the convulsions coming on with the menstrual date or just before. She was then seen by a noted specialist of this city, who pronounced her adnexa and uterus in perfect condition. To-day she gave a history of having had pain for the last ten days, increasing in severity; temperature has been running nearly normal, but was 102° when I saw her; there was considerable bearing down pain in the pelvis, running down the thighs. Vaginal examination showed an intact hymen and the uterus pushed well up forward close to the symphysis; a large fluctuating mass was found in the cul-de-sac and extending up on both sides, more especially on the left. A diagnosis of pelvic abscess was made and after removal to the hospital, a posterior section was made and a pint and one-half of thin pus was evacuated; a T-tube was inserted for drainage. Where did the pus originate? My idea is that the process was a tuberculosis of the peritoneum around the tubes and ovaries and that this was infected from an ulcer of the rectum, with the entrance of the pus producing organisms or the colon bacillus; the pus was foul smelling and contained some shreds of tissue.

REPORT OF CASE: PYOSALPINX.

Dr. W. E. BUTLER: This case is of great interest to me because of a mistaken diagnosis. Patient, 26 years old, married since last June, had always been perfectly healthy, with a perfectly normal menstrual history. History during her married life was regular menstruation with no pain whatever, no leucorrhea or yellow discharge, no urethritis, nothing abnormal, until August menstruation, which was nine days overdue, but was otherwise normal. Three weeks after that, in September, the next period came on, irregular in amount, stringy with clots and short-

er in duration. Three weeks after this, in October, she had a severe pain in the side, but did not menstruate. Four weeks following, to the day, she had a regular period. Two weeks ago last Tuesday night she was taken with severe pain in the abdomen, some nausea, vomited once or twice. This passed off in a short time. Her physician did not make a diagnosis. The following Tuesday she was seized with another attack of pain and laid up in bed. The attack was attended with some fever and faintness. On questioning her closely after the operation I found that there had been a feeling of fullness in the lower abdomen for a couple of months before the attack. When seen by me she had considerable faintness, pulse 110, and some little rise in temperature. Examination showed a large, irregular mass posterior to the uterus, which was pushed forward and upward. The diagnosis of ectopic gestation was made on the history and findings. She came to me with a diagnosis of acute appendicitis.

On operation I removed a large twisted pus tube as large as my fist from the right side. The appendix was adherent to the mass and was removed. On opening the mass eight ounces of pus were evacuated, and the ovary found to make up part of the abscess wall. Here was a case of a woman in perfect health, no discharge or history of gonorrheal infection, perfectly regular menstrual history until four periods ago when she went over nine days, the next period three weeks following, different from the ordinary flow in amount and duration containing shreds and clots; next period missed, but with pain in side taking its place, the following menses normal. Then a regular period. Then the rather sudden attack during which I saw her.

Several cases have been recently reported where the history has been that of ectopic pregnancy and the findings have been pus tubes.

Dr. G. Mc NAUGHTON: I have seen cases of that kind on the right side in the region of the appendix. I have seen three or four of these cases where there was a distinct mass behind the uterus lifting it up against the symphysis. I think a reasonable explanation was the one Dr. Butler gave, and it would seem to me it would be an ovary and tube that was beneath the broad ligament. We find the broad ligament in intraligamentous cysts raised as high as that. Such a cyst sometimes burrows up behind the peritoneum.

Dr. W. E. BUTLER: It seemed to be in the cul-de-sac; I do not think it was in the broad

ligament; I could feel the tubes and ovaries in the back.

When I first felt of it before taking the temperature, I felt I had a sub-ligamentous cyst, but taking the temperature and finding it $101\frac{1}{2}$ and the pulse up pretty high and the history of ten days from the acute symptoms, I began to think it was an abscess.

Dr. J. C. MACVITT: In my opinion, we all make a mistake in paying too much attention to gonorrhea in affections of the tubes. I think in attempting to exclude pyosalpinx because we fail to get a history of gonorrhea, is wrong; there are so many causes by which infection can take place.

Dr. W. E. BUTLER: An interesting point was the appendix was right against it and inflamed on the outside. A question was raised at the time whether it could have been an infection of the tube from the appendix, but there was absolutely no inflammation inside the appendix, so I think that was simply incidental to the inflammatory condition in the tube. The appendix was removed. The other tube was normal. No bacteriological examination was made.

Dr. F. J. SHOOP: In a paper I read before this Society some time ago, I expressed the belief that when the gonococcus was found in pus tubes, which is very rare indeed, it was accidental, and not the cause of it. I found in searching the literature on the subject, that while gonorrhea might be the starting point of an inflammation, which later extended to the tube, the gonococcus did not take any part in the causation of the pus tube, but rather some streptococcus infection that occurred in connection with the inflammation.

Dr. G. McNAUGHTON: I would question the Doctor's history of tubal pregnancy. She passed her menstruation nine days, but had no particular pain at that time, and she had a flow from the uterus without special pain. I think in cases of tubal pregnancy after a menstrual period you get very severe pain in 99 cases out of 100—pain severe enough to require the services of a physician to relieve it. At the same time I believe that is the hardest diagnosis to make—tubo-ovarian abscess is more like ectopic pregnancy than any other condition in the pelvis.

REPORT OF CASE: REMOVAL OF CROCHET NEEDLE
FROM THE BLADDER PRESENT TWO AND
ONE-HALF YEARS.

Dr. J. R. TAYLOR: I should like to show a somewhat rare find—a crochet needle which I

removed from the bladder of a patient a few weeks ago. The history of the case by the patient was, that some two and one-half years ago, by the advice of her then attending physician, she had used this needle to withdraw a clot from the uterus, or rather she attempted to do so. The patient stated that she had consulted her physician for hemorrhages two or three times, and he had instructed her in case of recurrence to take a knitting needle, introduce it to the clot, and she would have no further trouble. The gentleman forgot to tell her which end of the needle to take hold of, and lacking that detail of information she took it by the point, passed it into the vulva; it disappeared and was lost. She immediately went to her physician's office. He examined the vagina, but failed to find it. They put her in a carriage and took her to the New London Hospital, where 14 men of the visiting staff explored the vagina, rectum and uterus. They failed to find it. They discovered (from the description of their procedures) what seemed to be a polyp, and also a lacerated cervix. They removed the polyp and repaired the cervix. She left the hospital still suffering from the loss of the crochet needle and its effects.

She drifted about to different people complaining of pain in the left side, and finally some one sent her to me a few weeks ago, and her husband gave me an insight into the history of the case, but told me she would not tell me the truth of the affair. I examined the vagina and rectum. By bimanual examination I found on the left side in the broad ligament a hard, regular mass extending forward. The broad ligament and all the parts were exquisitely tender and the pain extended down the limb. I introduced a sound into the bladder when it immediately clicked on this needle. I then dilated the urethra under the influence of cocaine, introduced my forefinger, and immediately found the point of the needle against my finger. The point was carefully covered over by nature with a mass of urinary deposit, which protected it from puncturing the anterior wall of the bladder. In examining carefully I could only locate the anterior half of the needle or point, the body end of it was lodged somewhere under the ovary in the broad ligament. I introduced a long narrow forceps along my finger to the needle, and getting the point of the needle carefully in the axis of the forceps, by rotating it and loosening it, I withdrew it. There was no hemorrhage. The patient had no difficulty from extravasation of urine from the posterior wall, because a channel

was perfectly made by the material thrown out to protect it. I kept her in bed for five days with ice on the abdomen and she made a perfect recovery. During at least two years she had persistent cystitis, a highly offensive urine containing flocculent sediment. When she came to me the temperature was normal.

Dr. A. M. JUDD: Several years ago I removed from the male bladder a stone, which in the center consisted of wax, and on going into the history I discovered the patient had been in the habit of introducing wax tapers into the urethra for the purpose of masturbation. I suppose a piece was lost there and a stone was formed around this mass.

PAPER: EPIDEMIC PAROTITIS, METASTASIS TO THE FEMALE GENITALIA, REPORT OF CASE.

By G. McNAUGHTON, M.D.

Discussion.

Dr. J. C. MAC EVITT: We have all met with many cases of parotitis, and I cannot now recall in any one instance in my experience where the genitalia of the female were affected at the time.

The specific poison, as Dr. McNaughton mentioned, is not known, nor the anatomical pathways to the different organs affected. I was very much pleased to hear the explanation made by Dr. McNaughton, that this virus seems to select some glandular organ, and yet another point in connection with this same statement is this, that whereas the glandular structures of the ovary and testicle are analogous, they are entirely different from the structure of the uterus. The uterus is made up principally of muscular tissue.

Now if his surmise is correct that the virus elects glandular structure, those cases reported of abortion following parotitis must have been extrinsic, or due to other causes than the presence of the virus. It can easily be understood that in parotitis, where we get the high temperatures of 103 or 104, that the general systemic involvement would produce an abortion or miscarriage. The cases reported during pregnancy do not seem to convey to me any relationship between the two whatsoever—the throwing out of the fruit of the womb may have been incidental or coincidental with the existence of parotitis.

It is a most interesting subject, and one that will teach us at least, in the future, to more closely examine our cases of parotitis in children.

Dr. W. M. MADDREN: Dr. MacEvitt's evidence is negative evidence certainly. I think his reasoning in stating that there is no evidence that the ovarian tissue was involved, is a little erroneous. We do not question the fact that in the male, such metastasis produces orchitis—why, then, in the female should we question its producing an ovaritis. It seems to me more likely that it is an inflammation of the ovarian tissue rather than of the uterus itself, for the uterus lacks glandular tissue.

I do not recall in my practice any case of trouble in girls or young women, yet it is possible that I have overlooked them, because I have not been in the habit of looking for these things. They would be more conspicuous in the male and more likely to be ascertained.

It is an interesting subject, and I think it will help us all to investigate it more thoroughly.

Dr. F. J. SHOOP: I should like to ask Dr. McNaughton whether he finds in his researches, or in his experience, any metastasis occurring where there was only a mild inflammation in the parotid gland, or whether it always followed after a very severe attack—whether the severity had any effect on the metastasis? I believe if every case were seen early enough and the inflammation kept down, there would be no metastasis.

Of all the cases coming under my observation, I have used pilocarpin in liquor, ammonia acetatis, and spirits aethens nitrosi to reduce the fever and to wash out the gland, getting it into physiological activity as soon as possible. In every case there has been a prompt disappearance of all the symptoms, with quick recovery and no signs of extension to other glands.

Unfortunately it is only occasionally the family physician is called in to cases of parotitis unless severe symptoms arise.

It may be possible for the specific inflammation to attack the ovary or heart simultaneously with the parotid, but in that case it could not properly be termed metastatic.

Dr. G. Mc NAUGHTON: Answering Dr. Maddren, I think there is nothing to prove that the inflammation is in ovarian tissue. Of course, my experience is limited to one case, and I was led to look the matter up having that case, because it is usually mentioned that we may have ovarian complications, though not so frequent as the analogous condition in the male, but when I began to search for it, it was not forthcoming—it was merely a statement of others writing on the subject.

I cannot answer Dr. Shoop. There is no way of telling. No author I have seen mentions it.

I did not mean to say the ovary was not involved, because I believe that the organ is involved, but it has not been proved, because there have not been any post-mortems. Most of these cases occur in young girls, and a careful examination would not be warranted. I do know that the pelvic organs are affected in this condition. It is hard at any time to make a diagnosis of ovarian inflammation.

I asked Dr. Pierre Mallet to come over to-night (and I think the invitation was too short) to speak of the therapeutic use of the parotid gland in connection with the paper. He tells me he has been using the Parotid Gland Extract in painful menstruation, and he believes it is of much use. I think perhaps we might try that in some of our cases when we have run down other means and see if it does have any effect.

I think bringing up this subject will lead us to observe these cases more carefully. This Russian may be right in his observation, and if so, it may be of importance to know it, and that was my excuse for attempting to make a paper of so little.

Dr. H. C. KEENAN: I may be able to supply a little information on what Dr. Mallet has done in the line of glandular extracts. I worked in the Vanderbilt Clinic with him for some years, and he used not only the parotid extract, but also the mammary and ovarian extracts.

In regard to the parotid extract, when he read his first paper he did not make any claim about relieving menstrual difficulties, but simply that under its use adhesions or inflammatory masses disappeared with greater rapidity than under ordinary treatment *i. e.*, under the use of tampons and hot douches. That seemed to be also the belief of Dr. Shober, who was present the night this paper was read.

To say a few words about the other extracts: The use of the ovarian extract was advised in cases of amenorrhea; I used it in six cases at the Vanderbilt Clinic, and in every case it produced the menstrual flow. Three of these cases were cases of amenorrhea in women about the age of 30, with apparently a premature climacteric. Under the ovarian extract they all menstruated for certain periods of time. I must say, however, that in the majority of cases the flow became very irregular after three to six months, and finally stopped completely, and could not be again brought on.

Mention was also made of the mammary ex-

tract which Shober was working on. He used it particularly in cases of fibroid of the uterus and he seemed to believe that with it he was able to reduce the size of the fibroids, and even in some cases cause them to disappear entirely. Also he advised it in hemorrhage that ergot or other medication does not seem to check. I have found the mammary extract has considerable effect in these cases. It has a distinct physiological action, causing a contraction of the uterus. After taking 10 to 15 grains three times a day, extremely painful contractions of the uterus are sometimes produced, so that the use of the extract has to be discontinued.

Dr. W. E. BUTLER: I have used the Parotid Gland Extract in a number of cases of dysmenorrhea, and in cases of enlargement of the ovary apparently due to ovaritis, and I have seen marked improvement, I am sure, because the cases have been comparatively free from pain, practically entirely free from pain for the period they were taking the extract. Letting it up for a month the pain would come back again—giving it again the pain would be relieved. I have followed several cases, and I am sure they were benefited by the parotid gland extract.

Dr. Clarence Hyde reported a case of disappearance of adhesions in one instance. I saw the case in the hospital and the adhesions disappeared very rapidly under the parotid gland extract, after the preliminary treatment of douches, ichthyol tampons, and the ordinary routine treatment had been followed out, with failure to relieve.

THE BROOKLYN MEDICAL SOCIETY.

THE NINTH ANNUAL, or the SEVENTY-NINTH REGULAR MONTHLY, MEETING of the BROOKLYN MEDICAL SOCIETY was held on the evening of Friday, Jan. 16, 1902.

The President, DR. ALGERNON T. BRISTOW, in the Chair.

Dr. Geo. R. Kuhn and Dr. William B. Brinsmade were elected to membership.

Dr. H. E. Rogers, Recording Secretary, gave a brief verbal report of the excellent work done by the society during the last year.

Dr. Alfred Bell, corresponding secretary, read an extended written report, in which he gave facts and figures which showed the progress made by the Brooklyn Medical Society during the year 1902. He announced that the total membership

is 226. That during the year 1902 the Society had gained 56 members, a record of which it might well feel proud.

A letter from Mrs. William H. Haynes, expressing her thanks and appreciation for the resolutions of sympathy sent to her by the society, was read.

Dr. H. S. Pettit, Chairman of the Membership Committee, reported progress.

Dr. E. A. Hatch, Chairman of the Library Committee, reported the library in a very flourishing condition.

Dr. Heber N. Hoople for Dr. Walter C. Wood, Chairman of the committee on scientific papers, dwelt on the excellent work done by the society during 1902; on the fact that there had been nine excellent papers read by representative physicians from both Brooklyn and New York; that there had been forty-two discussions of said papers; that there had been thirty-four interesting specimens presented; two patients exhibited; and that there had been thirteen reports of cases read.

Dr. Albert H. Brundage, Treasurer, reported the treasury in a prosperous condition, showing a balance in the bank of \$389.31.

Dr. J. W. Ingalls, Chairman of the Auditing Committee, reported that they had gone over the treasurer's accounts and found them correct.

Dr. Peter Scott, member of the Milk Commission of the Kings County Medical Society, reported that the Commission was accomplishing much towards procuring pure milk for the city.

Dr. William Schroeder, Chairman of the Historical Committee, paid a compliment to the Society on its prosperity, not only on its increase in membership, but also on its retention of so many members during the ten years of its existence. He pointed out the unusual occurrence of its having lost both President, Dr. Haynes, and Vice-President, Dr. Parrott, in one year. He also referred to the death of two other members during the year, Dr. Clarence VanSyckle and Dr. Henry Bauer.

Frank J. Doyle, counsel to the society, reported that the Society is free from legal entanglements and congratulated it on the fact.

The following officers were elected to serve during the year 1903:

President, Dr. Algernon T. Bristow; Vice-President, Dr. John H. Droge; Recording Secretary, Dr. Hugh E. Rogers; Corresponding Secretary, Dr. Alfred Bell; Treasurer, Dr. Peter Scott; Librarian, Dr. Lewis E. Meeker. Trustees: Dr. John D. Sullivan, Dr. A. H. Brundage, Dr. E. W. Wright, Dr. F. H. Clark. Membership Commit-

tee: Dr. A. E. Shipley, Chairman; Dr. W. B. Brader, Dr. W. S. Allen, Dr. J. A. Lee, Dr. C. P. Peterman; Counsel, Frank J. Doyle. Dinner Committee for 1903: Dr. James C. Kennedy, Chairman; Dr. A. H. Brundage, Dr. Alfred Bell, Dr. E. W. Wright, Dr. J. W. Ingalls, Dr. A. E. Shipley.

A motion was made, seconded and carried that the Corresponding Secretary receive an annual fee of \$25

A motion was duly made, seconded and carried that the society supply Dr. Schroeder with the proper blanks for use on the historical committee.

A motion was duly made, seconded and carried that the Board of Trustees be authorized to apportion part of the money in the bank and put it aside as a sinking fund for a permanent home for the society.

Adjournment and social session.

HUGH EDWARD ROGERS, M.D.,
Recording Secretary.

SECTION ON OPHTHALMOLOGY.

STATED MEETING, NOV. 25, 1902.

The President, James W. Ingalls, M.D., in the Chair.

SCIENTIFIC SESSION.

PRESENTATION OF A CASE OF FIBROMA OF THE CORNEA.

DR. DAVID W. MEYER: This case with the history was presented at a previous meeting. The fibromatous growth extends, from above downward, over the cornea in both eyes. A growth now completely covers the right cornea and about three-fourths of the left is similarly affected. No pain or inflammatory reaction is present.

PRESENTATION OF A CASE OF CONGENITAL PTOSIS.

DR. D. W. MEYER: The child is seven months old. The lids have drooped since birth. Labor was normal. An accurate family history was not obtainable. The case shows a double ptosis with marked restriction of both eyeballs in abduction and adduction. On the whole it may be said that this is a typical case of congenital ptosis.

PRESENTATION OF A SPECIMEN OF A FOREIGN BODY IN THE LENS.

DR. DAVID W. MEYER: The boy is fourteen years old. He was breaking an old enameled sign

when a piece flew into his left eye. He was seen by me at the Brooklyn Eye and Ear Hospital a few hours after the accident. Examination showed a small wound in the sclera situated near the limbus. From this wound vitreous was exuding. The pupil was widely dilated. The lens was dislocated backward. The capsule was ruptured so that the lens was spread out in an elongated mass, in the center of which could be seen a brown discoloration. There were diminished tension and marked tenderness over the ciliary region. Within 24 hours a purulent secretion was discharging from the wound and the globe began to show signs of panophthalmitis.

The eye was enucleated. On section, in the center of the lens mass, was found a piece of rusty iron, partly covered by enamel.

EXPULSION OF THE LENS DURING A CATARACT OPERATION.

DR. B. C. COLLINS: The patient is a female sixty-four years of age. On completing the incision, the lens was expelled with great force and at the same time a large amount of vitreous was lost. The tension was not increased, the patient did not squeeze and the speculum was not causing pressure. A weak suspensory ligament was the supposed cause, as the patient was myopic. A good result followed closure of the wound for the usual length of time. Three weeks later a keratitis developed, commencing near the wound and completely covering the cornea, on the second day. Boric acid solution and atropin cleared up the condition in a week.

Vision with correcting glass is $20/70$.

WOUND OF THE CORNEA.

DR. B. C. COLLINS: A girl four years of age was seen about one hour after being injured. She had been struck with a stone making a puncture through which the iris protruded, and considerable vitreous had escaped. I anesthetized the patient, irrigated with salt solution, incised the protruding iris and vitreous and brought the wound together with a deep suture. No reaction followed, the eye was not bandaged. Vision became $20/70$ after a month.

REPORT OF A CASE OF SPONTANEOUS EXTRUSION OF LENS.

DR. J. W. INGALLS: A female, sixty-three years old, has had for a number of years past, a

dacryocystitis in right lacrimal sac. Last May she came to my office suffering from an extensive ulcer of the cornea. Hydrogen dioxid was applied to the ulcerated surface. The lacrimal sac was thoroughly cleansed with dioxid one to five. However, the case grew rapidly worse and in a few days hypopion developed. The pain was intense. An extensive corneal incision was then made and the anterior chamber was evacuated. Pain was almost immediately relieved. In a few days the ulcer began to show signs of healing. Her condition continued to improve about two weeks when suddenly, without any known cause, the ulcerative process began to extend and in a few days involved nearly one half of the cornea. One night the patient said she "felt something pop out of the eye." Her attendant found the crystalline lens lying upon the counterpane.

JAMES W. INGALLS.

Quénu and Landel (*Bull. et Mém. de la Soc. de Chir. de Paris*, No. 39, 1902) state that the results of experiments carried out by them during the last two years, have led them to the conclusion that oxygenated water used as a spray is the antiseptic agent of election for the disinfection of the air of operating rooms. Carbolic acid spray in such strength as can be tolerated by the operator is much less active and, indeed, but slightly superior to the spray of distilled water, although it acts more rapidly. Sublimate spray has more efficacy, but it has the disadvantage of exciting cough, and, moreover, it temporarily immobilizes the germs without destroying them. Again, condensation takes place rapidly, and the air not being saturated, the bacteria soon reappear in great number. Oxygenated water, it is stated, is not open to any of these objections. When present in large proportion it does not cause any inconvenience to the surgeon. When present in small quantity, as in less than 10 grams to the cubic meter, it assures the sterilization of air saturated with microbic germs. Unlike pulverized carbolic acid sublimate solutions, it is not rapidly precipitated, and its spray rests in suspension in the air. As a disinfectant of solid surfaces oxygenated water applied as a warm spray has remarkable efficacy, as it quickly destroys the spores of bacillus subtilis with which it comes in contact, while sublimate spray fails to destroy the spores of the bacteria of anthrax. In the practice of the authors, the air of the theater is saturated with the spray of oxygenated water for some time before, but not during an operation.—*British Med. Jour.*, Jan. 17, 1903.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed **BROOKLYN MEDICAL JOURNAL**, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the **JOURNAL** containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the **JOURNAL** free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the **JOURNAL**.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, MARCH, 1903.

THE PRESIDENCY OF THE LONG ISLAND COLLEGE HOSPITAL.

SINCE the death of Dr. A. J. C. Skene, the chair of President of the College has remained unoccupied. The appointment of Dr. John A. McCorkle to this position is a cause for felicitation, both to the College and to the recipient of the honor.

The first President of the Long Island College Hospital was Dr. Theodore L. Mason. His successor was Dr. William H. Dudley, whose support, both moral and financial, in the early years of the newly-launched institution, was as practical as it was high-minded and loyal.

Dr. J. C. Hutchinson, who for a long time had occupied a position in the faculty, after an interregnum succeeded Dr. Dudley to the chair of the Presidency of the Faculty of the College. Dr. A. J. C. Skene, of lately lamented memory, whose association with Brooklyn had been so long and so intimate, followed his distinguished colleague and dignified the position by a successful administration.

Since the death of Dr. Skene in 1900, the position, up to the present appointment, remained unfilled.

The professional life of Dr. John A. McCorkle has been closely associated with the Long Island College Hospital since his graduation from this College in 1873, having served successively as Interne, Visiting Physician, and subsequently as Professor of the Principles and Practice of Medicine, and Professor of Clinical Medicine in the College. In 1896 Dr. McCorkle was made President of the Long Island College Alumni Association.

The grave burden of responsibility which his newly accepted position entails will be somewhat lightened, as in the case of Dr. Skene, by the long period of previous work which Dr. Mc-

Corkle has enjoyed in the service of his Alma Mater. No one of Dr. McCorkle's friends entertains the shadow of a doubt of anything but the emanation of a broadened and deepened medical learning from, and unconditional progress for, the College under the tutelage of its new President.

We take the liberty of extending to Dr. McCorkle and to the College the congratulations of the profession upon the appointment to the Presidency of an able and devoted alumnus.

THE MILK COMMISSION.

THE question of a proper method of artificial infant feeding is always a vital one, always interesting and one which seems to-day near a solution. It is a subject that cannot be too freely discussed or too thoughtfully considered; and it is one concerning the investigations of which, the fruitfulness of the results obtained can scarcely be over-matched by any in the domain of medical science.

It is not necessary to consider here the causes by virtue of which many mothers are unable to feed their children at the breast. It is enough to know that in a large number of cases it is so, and that in almost every instance after weaning the necessity for the use of cows' milk, for a longer or shorter period, is indicated.

The results of the use of various kinds of milk upon infant mortality statistics were demonstrated in a paper which appeared in the February issue of this Journal, entitled "Infant Diarrheal Mortality in Brooklyn: Its Causes and Preventability."

The original article, "Raw Cows' Milk in Infant Feeding," appearing in this number contains the results of investigations made by the writer of this latter paper and those of others, on the results of changes produced in milk by heating. Degenerative changes are shown to take place in milk when heated to but 160° F. or above. The practical importance of the bacterial count of milk is evident when one observes that it may be used as an index of its purity, freshness, cleanliness and care in handling.

Sterilization and pasteurization of milk have been tested and found wanting as methods of preparing milk for infants' use, because of the relatively small amount of nourishment which the infant's stomach is able to appropriate from milk so treated. The minimizing of the number of bacteria in milk, the object for which these methods have been employed, is better accomplished

by measures which prevent the entrance of bacteria into milk. Preventive measures must be accomplished during the process of milking and handling. Sanitary stables, cleansing of the udders, discarding the fore milk are factors which, combined with a high order of intelligence in supervising the entire process of drawing and handling, may insure the delivery of milk to the consumer in an uncooked and yet nearly, though rarely absolutely, sterile condition.

Thanks to the energetic and unselfish efforts of the several members of the Milk Commission, a milk may now be obtained over which a constant supervision of experts is exercised. The results which the Commission has so far accomplished are a cause for congratulation, and still more fruitful results may be anticipated.

A LIGHTER SIDE OF MEDICAL LIFE.

NUMERICALLY considered, medical dinners at the mid-winter season fall within the class of products popularly described as "at a discount." Yet, by directing attention to the large number of medical societies and organizations in active existence in the city, they but emphasize the energy and resources of the medical profession as a whole.

No organization can long exist without a definite aim, or unless the work it accomplishes is commendable in some one or more directions. The existence of a large number of societies in any profession may consequently be taken in a way as an index of the activity and enthusiasm of their members.

As a method of relaxation and change from the work-a-day side of the profession the medical dinner is not to be despised.

Medical men are like other men in their capacity for enjoyment, in their willingness to be entertained or amused, and are second to none in the possession of a wholesome good-fellowship which takes pleasure in the company of confrères.

The third Annual Meeting and Dinner of the Brooklyn Hospital Alumni Association was held at the Montauk Club Jan. 28, 1903. Dinner was served at 7.30.

Drs. A. R. Paine, S. M. Sherwell, William Waterworth, F. C. Raynor, J. Scott Wood, W. E. Butler, Cornelius Duggan, P. Chalmers Jameson, H. E. Fraser, H. H. Waugh, P. F. Loudern, F. A. McGoldrick, A. A. Hussey, J. E. Jennings, C. L. Fincke, G. L. Buist, R. C. Holcomb, J. J. Conway, A. S. Tredwell, J. D. Rushmore, C. G. Molin, J. M. Callender, J. E. Blake, and C. F. Her-

man were the members present. Mr. T. O. Callender and Francis Eames of the Board of Trustees of the Hospital were guests. After an enjoyable repast the meeting was called to order at 9 o'clock by Dr. A. R. Paine, President, who introduced Mr. Callender and Mr. Eames to the members. The gentlemen spoke to some length upon the present policy and future prospects of the Hospital. After the usual business of the association the following officers were elected for the coming year:

President, Dr. John D. Rushmore.

Vice-President, Dr. Thomas A. McGoldrick.

Secretary-Treasurer, Dr. U. P. Rathbun.

Historian, Dr. C. F. Herman.

Executive Committee—Dr. Arthur R. Paine, Chairman; Drs. J. M. Callender, L. E. Fincke, A. A. Hussey, W. Waterworth and J. J. Conway.

C. F. HERMAN,
Secretary.

CORRESPONDENCE.

To the Editor of the BROOKLYN MEDICAL JOURNAL:

I would like to call your attention to a peculiar feature of the new charter for New York City in connection with the "Reports of Births."

This section fixes the responsibility for reporting births upon no one in particular and yet asks all those who may be present at the time of a birth to file a record with the Board of Health, and the position taken by some of the staff at the Health Department is that all are equally guilty of a misdemeanor and subject to the fine. Personally, I believe the section useless as a means to insuring proper record of birth and that some means should be taken by the Medical Society to fix the responsibility upon the physician in attendance, rather than leave this blanket clause in the charter, which places a premium on neglect.

I doubt if one physician in ten who may be called in to give an anesthetic understands that it is a part of his work to see that the birth certificate is dropped into a mail box on its way to the Bureau of Records of the Department of Health.

JOHN J. A. O'REILLY, M.D.

Dr. Sajous, of Philadelphia, has just completed the first volume of a work which seems to suggest that the ductless glands afford elements for future labors which may lead to a new era in medicine. The first volume of the work will be published early in March.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor, before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M. D., 126 Joralemon Street.

Dr. Lewis H. Miller announces his removal from 287 Clinton avenue to 109 Halsey street.

Dr. William Francis Campbell announces the removal of his office to 86 Greene avenue.

At the recent meeting of the New York State Medical Society in Albany, January 27-29, the following Brooklyn physicians read papers: Dr. Lewis S. Pilcher, Dr. Glentworth Butler and Dr. William Browning.

Among the Brooklyn physicians named as consultants to the new Jamaica hospital, the Mary Immaculate, are Drs. Jacob Fuhs, George R. Fowler, H. B. Delatour, Peter Hughes, R. L. Dickinson, J. W. Winfield, Fred D. Bailey, Charles N. Cox and J. M. Van Cott.

Dr. Joseph H. Hunt, who has been absent from the city since last June for his health, recently returned, but expects to leave immediately for the West to be gone a year. The trip is intended to recuperate the Doctor's health. California, Honolulu and Japan will be visited. It is sincerely hoped that Dr. Hunt returns thoroughly able to resume his professional work.

Through the active efforts of Dr. Ernest Palmer, senior surgeon of the Long Island College Hospital, and assisted by Mr. Thomas H. Troy, of Brooklyn, a complimentary dinner was tendered to Dr. John A. McCorkle on Feb. 14, at the Montauk Club. The occasion of the dinner was in recognition of Professor McCorkle's recent election to the Presidency of the College. The attendance included not only representative men in his own profession, but those from every walk of business and professional life. The Regents, Faculty, Council and attending surgical and medical staffs of the hospital were present, in addition to many well known business men and prominent Brooklynites. The JOURNAL extends its sincere congratulations to Dr. McCorkle on the honor conferred on him, and wishes for a most successful term of office. It is now to be hoped that the actual commencement of operations on the new building for the Long Island College Hospital will soon be realized.

The Enno Lander Prize, of the Association of Military Surgeons of the United States, for 1903, will be awarded to the author of the best essay on "The Differential Diagnosis of Typhoid Fever in Its Earliest Stages." The board of award will be Dr. Austin Flint, of Manhattan, Col. Calvin DeWitt, U.S.A., and Prof. Victor Vaughn, of Ann Arbor. Full information may be obtained from Major James E. Pilcher, Carlisle, Pa. The essayist securing first place will receive a gold medal of the value of \$100, while the essayist securing first honorable mention will receive a life membership in the Association, of the value of \$50. Essays must consist of not less than 10,000 nor more than 20,000 words, exclusive of tables.

The thirty-fourth annual report of the Brooklyn Eye and Ear Hospital shows a flourishing condition of affairs. The number of new patients received was 15,177, an increase of 1,777 over the previous year. The endowment fund has been increased by \$1,000, and is now \$87,000. The legacy of Mrs. Dr. Smith when received will still further increase it by \$10,000, thus almost reaching the high water mark. Receipts for the year were \$15,379.86; expenditures, \$12,033.33; balance, \$3,346.53.

The third annual dinner of the Brooklyn Hospital Alumni Association was held recently at the Montauk Club. Twenty-eight members, were present, besides two trustees of the hospital, and Charities Commissioner Teale. Dr. John D. Rushmore was elected president for the ensuing year.

Dr. Lefferts A. McClelland recently entertained the members of his Ping-Pong Club at his residence with a "camp supper in the Rockies." The supper was served on wooden plates; the guests sitting on camp chairs, orange crates and boxes. In the intervals between musical selections, a typical Rocky Mountain guide regaled the guests with true tales of the Rockies, which surpassed in interest those of Ernest Seton Thompson. The room in which this novel entertainment was given was banked with balsams, three sides of the room and the ceiling being covered with canvas forming a tent. The floor was covered with crash, sawdust and sprays of pine.

The recent election of Dr. Algernon T. Bristow as President of the New York State Medical Society, recalls the fact that this is the first time a Brooklynite has been honored in this respect for twelve years. The JOURNAL extends its congratulations to Dr. Bristow.

Drs. Arthur Mathewson, P. Chalmer Jameson,

and Fred D. Bailey announced that they will repeat the course in ophthalmology held last year at the Brooklyn Eye and Ear Hospital, the course beginning Feb. 6, and extending over six weeks. The fee will be \$10.

At the same hospital a course in otology, rhinology and laryngology will be given, beginning on Feb. 9, and extending over six weeks, for which a fee of \$10 will be charged.

The last month has witnessed the demise of not a few well known Brooklyn physicians. Dr. Earl E. Woolworth died from a fractured skull, the result of an accident; Dr. Joseph Edwin Clark, who was prominent in the reorganization of St. Peter's Hospital in 1875, died of pneumonia; Dr. J. Frank Valentine, well known to all members of the Associated Physicians of Long Island, died of typhoid, and Dr. Thomas N. DeBowes, one of the founders of St. Mary's Hospital, died recently at the age of seventy-one, of arteriosclerosis and renal disease.

Dr. William H. Shepard, of 324 52d street, while bowling met with a very painful accident to his back, the nature of which is not clearly understood. It is supposed, however, that a portion of one of the latissimus dorsi muscles was torn from its insertion into the spinous processes of the vertebræ. The Doctor was confined to his bed for two weeks, but, we are pleased to note, has recovered sufficiently to sit up and receive his friends.

The Williamsburgh Hospital, which closed Jan. 15 for want of funds, has reopened its doors, and with increased accommodations. The institution starts off practically clear of debt, as the payment of the deficit has been assured, and in addition, earnest support has been promised the institution. The recent euchre in aid of the hospital, under the careful management of Mrs. John O. Polak, netted about \$1,000. The building will be renovated and repaired where necessary, and a number of other changes made. The Executive Committee will be Drs. William E. Butler, Ralph H. Pomeroy and Robert J. Morrison. The Board of Directors includes, in addition to the members of the Executive Committee, Drs. Lefferts A. McClelland, William Francis Campbell, Clarence R. Hyde, James Watt, David Myerle, Norman P. Geis, John G. Dickert, E. A. Parker, J. J. Keyes, and John O. Polak, Secretary.

The following set of questions in medical jurisprudence, by Prof. Willard Bartlett, justice Supreme Court, was given to the senior class of the

Long Island College Hospital, as an examination, Feb. 6, 1903:

1. Define medical jurisprudence, and explain the difference between medical jurisprudence and legal medicine.
2. State the legal obligations of a medical practitioner with reference to his patients.
3. Can a surgical operation lawfully be performed without the consent of the patient, and if so, under what circumstances?
4. Define malpractice in medicine; and give an illustration.
5. May a medical practitioner, when summoned to attend an emergency case (that is, a person suddenly placed in great peril by illness or accident) lawfully refuse to attend the same?
6. Under what circumstances may a medical practitioner who has undertaken a case cease his attendance upon the patient?
7. Under what circumstances does the law require or permit a coroner's inquest?
8. What schools (that is, systems) of medicine are recognized by the State of New York? Give the distinctive features of each.
9. Is there any difference, and if so what, between the legal obligations of a medical practitioner toward a gratuitous patient and a pay patient?

The following circular has just been issued by the Committee on the Prevention of Tuberculosis of The Charity Organization Society, of the city of New York:

Whereas, It has come to the knowledge of the Committee on Tuberculosis of the Charity Organization Society that many so-called specific medicines and special methods of cure for tuberculosis have been and are being exploited and widely advertised, and

Whereas, The advertisements of some of these cures have made such reference to the Tuberculosis Committee of the Charity Organization Society, or to some of its members, as to create the inference that this Committee, or its members, recommend or advocate the use of many such so-called specifics or special methods of cure for pulmonary tuberculosis, or consumption, and

Whereas, There is no specific medicine for this disease known, and the so-called cures and specifics and special methods of treatment widely advertised in the daily papers are in the opinion of the Committee without special value, and do not at all justify the extravagant claims made for them, and serve chiefly to enrich the promoters at the expense of the poor and frequently ignorant or credulous consumptives, therefore,

Resolved, That a public announcement be made that it is the unanimous opinion of the members of this Committee that there exists no specific medicine for the treatment of pulmonary tuberculosis, and that no cure can be expected from any kind of medicine or method except the regularly accepted treatment which relies mainly upon pure air and nourishing food.

Dr. George M. Gould, editor of *American Medicine*, is the author of a modest book called "Biographical Clinics; the origin of the ill-health of DeQuincey, Carlyle, Darwin, Huxley and Browning." The book is remarkable, not only from a medical standpoint, but as an interesting biographical brochure. One usually thinks that everything has been said about these well known authors that could be said, yet Dr. Gould shows us otherwise. He thinks DeQuincey could have been saved from being an opium fiend if he had had properly fitted glasses, and that Huxley could have worked steadily from one year's end to the other and not go abroad for "brain fag" if he also had had refractive errors and eye strains corrected. Dr. Gould claims that Dr. S. Weir Mitchell was the pioneer oculist, and credits him with being the first to understand the pathology of astigmatism, and to recognize especially, the pathology of eye strain. A critical digest of Dr. Gould's theories tells us that eye strain doesn't affect the eye-ball so much as "it shunts its strain to some other part of the interior economy"—oftenest the digestive organs.

The campaign of Dr. Lederle, Health Commissioner, against the sale of impure drugs, has brought out many interesting facts concerning drug adulteration. Take phenacetine for instance: out of 373 druggists in Manhattan and Brooklyn, 315 sold an inferior or dangerous drug as phenacetine. Samples were purchased at random, and of these only 58 contained the pure drug. Dr. Joseph A. Deghull, the departmental chemist, is conducting the experiments, and in his report to the Commissioner mentions the adulterants, with the percentage of each, found in every sample. The *Druggists Circular* has now become interested, in defense of the retail druggists, and is much disinclined to believe that so large a proportion of druggists would furnish an adulterated article. The detailed report of Dr. Deghull ought to furnish interesting reading to both physician and layman alike.

Health Commissioner Lederle has succeeded in securing ten additional trained nurses to be assigned to public schools in Manhattan and Brooklyn boroughs. Each nurse devotes all her

time to the group of schools to which she is assigned. She will have an office in the school building and will treat all cases referred to her by the medical inspector. Inflammatory eye diseases, pediculosis, and skin eruptions will receive special attention, in an effort to lessen their propagation.

The authorities of Bellevue Hospital are making heroic efforts to have the city appropriate \$3,000,000 for the erection of an entirely new Bellevue, modelled after the most modernly constructed hospitals. It's about time!

There is no question now about the transmission of disease germs from one person to another through the handling of articles by those infected with certain forms of sickness, and scientists are warning us that even the telephone may serve as the medium of infection, through the inhalation of microbes deposited in the transmitter by a speaker who is already suffering from disease. These warnings have set the inventors to thinking, with the result that a number of devices for the disinfection of the telephone have been produced. One appliance consists of a package of tissue paper suspended on a wire over the transmitter, with a hook to support a single sheet in front of the opening. Before using the instrument the uppermost sheet is drawn forward on the wire and turned downward over the bell until it is in suspension on the hook. In this suspension the sheet isolates the speaker's mouth from the chamber of the mouthpiece, preventing his inhaling any disease germs that may have found lodgment therein through the previous use of the telephone by a germ-infected person. After using the instrument the sanitary sheet is simply stripped from the hook and thrown away, to be replaced with a fresh sheet by the next speaker.—*Toledo Blade*.

McCollom (*Boston Medical and Surgical Journal*) finds that measles is not such a mild disease as commonly held, and hospital treatment is advisable. It is the most infectious of all disorders, and may be so long before the diagnosis. Its complications are serious, especially diphtheria, and its sequelæ, like inflammation of the ear, are also liable to give trouble. There are many individuals living in boarding houses or lodging houses who require hospital treatment if attacked by this disease, and if present accommodations are inadequate. A separate pavilion is absolutely necessary for the treatment of these patients in a hospital.—*Jour. Amer. Med. Assn.*

AN ESSAY UPON THE GENERAL PRINCIPLES OF PREVENTIVE MEDICINE,

BY W. WAYNE BABCOCK, M.D.

Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia; Pathologist Kensington Hospital; Assistant Pathologist Philadelphia Hospital, etc.

Awarded the first prize of one thousand dollars in the competition instituted by The Maltine Company.

(Continued from p. 114.)

Great care should be taken that the lead-impregnated dust in smelters is carried off through proper exhaust flues and precipitated, and that the rooms in which the workmen are engaged are kept in as neat a condition as possible. Proper respirators should also be worn if the exhaust flues are inefficient, and the clothing should frequently be changed and washed, that the particles of lead entangled in its meshes be not absorbed. Irritating fumes should be carried off by proper flues and hoods. Where this is not entirely successful, respirators impregnated with the appropriate neutralizing chemical should be worn. "Phossy jaw" has been found to occur chiefly in those with decayed teeth, and the greatest care should be taken by these workers that any cavities be promptly filled. The use of the red instead of the yellow phosphorous does away largely with the danger of phosphorus-poisoning in the manufacture of matches, and should be generally adopted.

In all factories sufficient protection to the lives and limbs of those employed should be insisted upon and, if necessary, enforced by appropriate legislation and inspection. Work rooms should have an ample light and air supply, and should be provided with means for safe and rapid egress in case of panic or fire. Many corporations have found it of economic as well as sanitary advantage to restrict the number of working hours, supply comfortable seats, work tables, well equipped lavatories, attractive surroundings and to aid employees in securing sanitary homes, wholesome food, uplifting mental diversion and sufficient exercise. Civilized communities cannot afford to passively tolerate occupations that are degrading to mind or body or that show a careless disregard of personal injury.

Neurosis from Occupation.

The loss of the natural coördinate action of related groups of muscles, already mentioned as occupation spasms or palsies, is most frequent in those exposed to severe mental strain or in those with neurotic tendencies. Occupations associated with great mental effort frequently lead to forms of *hysteria*, *neurasthenia* and *paralytic dementia*. To such affections *statesmen*, *artists*, *financiers*, *journalists*, *authors*, *lawyers*, *physicians*, *teachers* and *students* are especially predisposed. The comparatively isolated life of *agriculturists*, with its tendency to brooding and in-

trospection, seems to favor the development of *melancholia* and forms of *insanity*. *Neurasthenia*, therefore, is often a product of urban life, *melancholia* of rural life.

The *prophylaxis* of these conditions is obvious: relief from mental strain, physical exercise, and a closer association with nature for those predisposed to *neurasthenia*; the cultivation of the more attractive social diversions and relief from monotony, for those with melancholic tendencies, and in general the absolute interdiction of stimulants, narcotics and all forms of excess.

CHAPTER VII.

EXTRINSIC FACTORS OF DISEASE.

ANIMAL PARASITES.

PARASITES.

Living organisms either animal or vegetable that live at the expense of other organized beings (hosts) are termed *parasites*. Forms of life living upon dead organic or inorganic matter are designated *saprophytes*. These may be *messmates* in which case they live upon food collected by the host or they may pursue an independent form of existence. Obligatory parasites are those that live only on the tissues of hosts. Many forms, however, are optional, adapting themselves to a parasitic as well as a saprophytic existence. Parasites may excite pathologic processes by producing mechanical injury, causing tissue waste, or by liberating toxic substances. Those parasites usually designated as infectious organisms are injurious chiefly through the liberation of poisons. It should be noted that while for convenience we say that certain parasites produce disease, the process is, in reality, much more complex, for in the origin of disease structural and functional changes in the tissues have an important part. Similarly, we say that a fire is caused by a match, yet the blaze is a result of the union of oxygen and a combustible substance. The match, however, may be an essential inciting factor and so it is that parasites often prove an essential inciting factor in disease by destroying the equilibrium of health. The parasites concerned in disease production are found chiefly among the bacteria and molds, in vegetable life; the protozoa, worms and insects in animal life.

The Evolution of Parasitism.

For the most part, evolutionary changes taking place in organized beings, tend to a greater dependence of one form of life upon another. The primitive types must have subsisted entirely upon inorganic substances. Indeed, the first forms probably made use in large part of free elements or the simplest available compounds, and by a process of synthesis produced gradually more and more complex combinations. As the compounds thus produced became more akin to the bioplasms, of which organized beings are formed, it was but

a simple step for certain forms of life to utilize them rather than perform the more difficult task of building up bioplasm out of the elements. Thus may have developed dependent, saprophytic forms of life subsisting upon products formed by other organized beings. In the natural tendency toward conservation of energy, it seems probable, certain life forms acquired a yet more direct method of acquiring nutriment by merely transferring and transforming to their own use the bioplasm more or less laboriously elaborated by other living things. Evolution is characterized by a tendency to the progressive increase of this parasitic form of existence. Indeed, the well known law regarding "*the survival of the fit*" expresses in one aspect a *progressive and triumphant parasitism*.

Among the lower vegetable parasites the changes outlined are known to take place with great rapidity. A few of the soil bacteria represent quite primitive forms of life, being able to use such elementary substances as oxygen and nitrogen and carbon dioxid. Other bacteria found in the soil are able to use the compounds thus formed and to make from them combinations sufficiently complex to serve as food for the higher plants. Again, other bacteria that may have sprung from the same root-stock are parasites living at the expense of the compounds formed in these higher plants. By evolutionary changes, consummated in a few generations, a saprophytic organism may become parasitic; while most parasitic forms can accustom themselves to a saprophytic existence. As affecting human pathology, for example, many of the organisms responsible for pus formation rapidly lose their injurious properties when grown outside the body. By permitting the bacteria to live in the bodies of susceptible animals for a number of generations, their virulence against more resistant animals is often regained.

There is a group of bacteria including the *tubercle bacillus* and forms resembling it, that has a special interest in this connection. These organisms resemble each other in form, in manner of growth, and in their reaction to certain stains—being called *acidfast bacteria*, because when stained they resist the decolorizing action of the stronger acids. Besides the tubercle bacillus and the smegma bacillus, the group includes forms found in butter, upon grass, and in the manure of animals fed upon the grass. These vary widely in their pathogenetic activities. The *smegma bacillus* seems unable to invade or injure the living tissues. The *grass bacillus* shows limited pathogenetic properties that simulate in a milder way those of the tubercle bacillus. Again, tubercle bacilli of very limited virulence have been observed. It is not unreasonable to assume that the grass bacilli, at least, may represent an ancestral form of the organism of tuberculosis. Repeatedly entering the alimentary tract of herbivori with food, it is possible that these organisms have gradually accustomed themselves to the higher temperature of this new habitat, and to the animal nutriment; have acquired a resistance

to the antagonistic action of the animal cells; and finally have been able not only to overcome this resistance, but also to invade the tissues with destructive effects. In this way it is possible that the virulent bacillus tuberculosis has been evolved. Having been disseminated among various species of animals, different properties have been acquired in each; and thus the differentiation into the forms special to the cow, the fowl, and man may have occurred.

While such evolution of the tubercle bacillus is in part suppositious and remains unproved, there is abundant evidence of the constant general tendency to the production of parasitic forms by some such process. In considering the invasion of living organisms by bacteria and the lower animal parasites and the means by which it may be prevented, the principle here declared is of great importance; for sanitary science must strive not merely to limit the range of activity of the known parasites, but also to *avert the evolution of disease-producing forms out of types now harmless*.

ANIMAL PARASITES.

PROTOZOA.

Infusoria.

Catarrhal or ulcerative inflammations of the intestinal tract have been attributed to the presence of *Calantidium coli*, *Cercomonas intestinalis* and *Trichomonas intestinalis*. These parasites may be acquired from hogs or other domestic animals, from contaminated earth or water.

Rhizopoda.

Of chief importance is *Ameba coli*, apparently an important factor in chronic dysentery and hepatic abscess. It is suggested that they may be acquired from cats. It is possible that future investigation will prove that ameba, otherwise harmless, play an important rôle in disease production by serving as intermediate host for bacteria.

Sporozoa.

Most important is the *malarial parasite* which has as its definite host and carrier, the mosquito. *Coccidia* occur in oxen, mice, salamanders, cuttle fish, centipedes, and from these animals or from moist earth in which they undergo a developmental cycle they may, in rare instances, be acquired by man.

Sarcosporidia occur in the muscles of mice, cattle and birds, producing cysts so minute as to be barely visible as whitish specks.

The chief mode of human infection would seem to be the eating of infected and imperfectly cooked meat.

INSECTA.

Insects may be harmful directly or because they serve as carriers of parasites. They may be injurious through their bites and venom, or by their invasion of the tissue.

The larvæ of various insects may develop upon, or within, the body, from eggs deposited upon the person or within the cavities of the body or upon food. The larvæ may develop in the nasal passages, the accessory sinuses, the ear, eyes, intestinal tract, vagina or wounds.

Caterpillars may cause a severe erythema and urticaria through poisonous cutaneous hairs. The irritation of the procession caterpillars (*Cnethocampa*) of Europe is notorious and urticaria may result without direct contact. In rare instances lepidopterous larvæ have been found in the intestinal contents.

Diptera.

Most of the *parasitic larvæ* belong to the family of flies. In the nose, in the external ear and their accessory sinuses, and in the conjunctiva, ova of the *blue-bottle fly* (*Musca vomitoria*), the *common flesh fly* (*Creophila*), the *botfl* (*Gastrophilus equi*), and *Lucilia macellaria* may be deposited and develop into larvæ that cause serious lesions. The presence of maggots in these places is much more common in tropic regions, and especially in persons of uncleanly habits. The *screw-worm*, the larva of *Lucilia macellaria*, found in tropic and subtropic North America, destroys both the soft and osseous tissues, and may penetrate from the nasal sinuses to the brain. In 44 cases there were 30 deaths. Dipterous ova may also be deposited in the ear, in wounds, and in the vagina after parturition. After ingestion of the eggs of the *common house fly*, the *blue-bottle fly*, or the *flower fly*, the larvæ may set up a marked irritation in the intestinal tract. More or less local irritation may be produced by bites of *horse-flies* (*Stomyxes* and *Tebanus*). The larvæ of the *ver Macaque* (*Dermatobia noxialis*) of Mexico, the *mecaco worm* of New Granada, and the *ver du Cayor* (*Ochromyia anthropophaga*), of Africa, burrow beneath the skin.

Personal cleanliness, the protection of wounds and screening of rooms against flies are important preventive measures. From the normal sinuses or wounds these parasites may be removed by syringing with solutions of carbolic acid, mercuric bichloride or by appropriate forceps.

Siphonaptera.

The fleas are suctorial, wingless insects possessing great leaping power and closely related to the Diptera. While each kind seems to have a particular animal as its normal host, they often, for a temporary period at least, migrate to other species of animals. Thus, the *hen flea*, the *rat and mouse flea*, or the *dog and cat flea* may affect man. The *common house-flea* (*Pulex irritans*), is distinguished from those of the dog and cat by the absence of spinous combs about the head. The *jigger flea*, or *chigoe*, occurs in tropic and subtropic regions, infecting lower animals and man. After impregnation, the females burrow into the skin, especially of the sole of the foot and about the toe-nails, producing a vesicular or pustular inflammation. If the insect's greatly

distended body be ruptured within the tissues, liberating the larvæ, serious inflammatory changes may follow. In the presence of chigoes particular care should be taken in repeatedly cleaning and removing all dust and litter from the floors of dwellings, stables and hen-houses. These should then be sprinkled with pyrethrum, solutions of carbolic acid, creolin or other insecticide. Daily baths should be taken, the feet and ankles protected by clothing and any fleas that have affixed themselves to the skin promptly extracted.

Hemiptera.

The Hemiptera are suctorial insects living upon the juices of animals and plants. The bedbug (*Cimex lectularis*) and various pediculi or lice (*Pediculus capitis*, *Pediculus corporis*, and *Pediculus pubis*), are the chief varieties of hemipterous insects that infest man. The liquid secreted by the crab louse is said to cause slaty blue spots, ("taches bleuâtres"), upon the skin. Lice may be acquired from contact with infected persons, clothing or utensils. Methods of prophylaxis are considered under heading, "The Prevention of Disease Transmission by Insects."

Bedbugs are said to occur on domestic fowls, pigeons, swallows and bats. They are distributed over most parts of the civilized globe. Idiosyncrasy greatly influences the degree of reaction to their bites. The so-called "big bedbug" (*Conorhinus sanguisuga*) is a much more formidable insect, found throughout the southern United States and in South America. The adult forms are winged and as they probably fly from wooded areas into houses at night, they may be excluded by the use of screens. Their bites are often followed by serious inflammation.

ARACHNIDIA.

Many of the spiders and scorpions are venomous. Of the arachnids invading the body, the itch mite (*Scarcoptes scabiei*), the cause of scabies or *itch*, is the most important. In the sebaceous follicles, especially of the nose, a minute parasite, *.3 mm. to .94 mm. in length, the *Demodex* or *Acarus folliculorum* is often present. It may be an exciting factor in *acne*.

Ixodes.

The ticks, or wood lice, attach themselves to man or beast from grasses or shrubbery which they inhabit. They fill themselves with blood and may transmit disease. *Boophilis bovis* is a carrier of *Texas cattle fever*. The bites of the *Argas persicus* of Persia and *Argas moubata* of Portuguese South Africa are often followed by a severe febrile illness, apparently due to the inoculation of a parasite. To prevent their bites houses may be fumigated by smoke or pyrethrum, beds should be placed above the ground and should be carefully screened.

Linguatula rhinaria (*Pentastomum tanioides*) is found in portions of Europe, and in the adult form invades the nasal sinuses, rarely in man, commonly in dogs, and occasionally in horses.

The larval form (*Linguatula serrata*, *Pentastomum denticulatum*) occurs in the liver, spleen and sometimes the kidneys.

The harvest bug (*Leptus autumnalis*), or red flea, the larva of the *Trombidium holosericum*, is a minute, reddish parasite which burrows beneath the skin, usually of the wrist, and produces papular lesion, associated with intense itching. They may be destroyed by the application of sulphur or mercurial ointment.

ANNELIDES.

Of the leeches certain forms are aquatic and attach themselves to the integument of animals that enter the water. Other forms are found in bushes and grasses, from which they spring upon passing animals. Of the latter the *Hemadipsia* or *Hirudo Ceylonica* of Ceylon and parts of South America is most important. Not only may the bites cause painful ulceration, but death may occur from repeated small bleedings. In southern Europe and northern Africa the horse-leech, *Hemopsis sanguisuga*, occurs, and may invade the nasal chambers, the trachea, or larynx, producing severe pain and repeated hemorrhages. The leech may gain entrance to the body through foul drinking water. By boiling or filtering all drinking water and by protecting the surface of the body, leeches may be avoided.

HELMINTHES (VERMES).

The worms parasitic in man comprise the *nematodes*, or round-worms, the *trematodes*, or sucking worms, and the *cestodes*, or tapeworms. The *nematodes* have an elongate, cylindrical body, varying in length from a few millimeters to one or more meters (1/10 to 60 inches); the head is not differentiated from the body, and they occur in pairs. They are oviparous or ovoviviparous, and are found in the intestinal tract, in the tissues, or in the blood- and lymph-vessels. The embryo or the adult form may cause disease.

The *trematodes* rarely exceed a few centimeters (1 1/2 inches) in length and the head is undifferentiated. Certain forms are hermaphroditic. They live in the intestines and blood-vessels.

The *cestodes* consist of a minute head with suckers for attachment, a narrow neck and many segments or proglottides. They measure from 5 millimeters to several meters (1/4 inch to 100 feet). Each proglottid contains both male and female generative organs. The complete worm is termed a strobile; the embryo, a scolex or measle. The strobile is always found in the intestinal tract; the measle in the tissues, especially the muscles.

To avoid infection by the intestinal parasitic worms, dependence should not be placed upon the inspection of meats and other foods alone. Measures of personal cleanliness, the sterilization of food-stuffs by cooking, and the prevention of insect contamination are of great value. The most important of these measures is thorough cooking. Smoking is not an efficient parasiti-

cide, but many of the methods of pickling meats, slowly destroy the worms. As the manure from hogs or other animals may contain ova of some of these parasites, care should be taken in its use as a fertilizer for green vegetables, especially celery, lettuce and the like. The generally recognized measures to prevent water pollution should be observed.

NEMATODES.

The common round-worm, (*Ascaris lumbricoides*), occurs chiefly in the small intestine. In many instances it causes no disturbance, but occasionally, by migration into the stomach, biliary passages, appendix, mouth, nose, eustachian tube, or through the intestinal walls, or by the production of toxic substances, gives rise to serious trouble. If present in large numbers, serious reflex disturbances or intestinal obstruction may result.

The thread-, pin-, or seat-worm, the *Oxyuris* (*Ascaris*) *vermicularis*, occurs in the colon and rectum of children, and occasionally of adults. It rarely leads to serious symptoms, although there may be local irritation, and reflex disturbances. The eggs are constantly present in the intestinal contents of those affected. Through improper disposal of excreta, soil, drinking water and green vegetables may be contaminated. The eggs may also be carried by flies and other insects.

Uncinaria (anchylostoma) *duodenalis* or hook worm affects chiefly miners, tunnel makers, brick makers, diggers, farmers and others who come in direct contact with the soil. More common in the Mediterranean countries as Italy and Egypt, the disease has been found in all parts of Europe, and recently in America. The adult worm lives in the duodenum puncturing the mucous membrane and sucking blood, first at one point and then at another. The repeated blood abstractions, with the ensuing hemorrhages, the bacterial infection of the damaged intestine, and the interference with assimilation of food, together, according to certain authors, with the absorption of toxic products of the parasite, lead to anemia of a high grade in the host; miner's anemia, brick-maker's anemia, tunnel anemia, mountain anemia, uncinariasis. The eggs are deposited in the intestinal canal by the female parasites, but do not develop into adult worms within the body. After escaping with the feces each egg, if the environment is favorable, develops a single embryo. This lives in water or moist ground and gradually the sexes become differentiated and approach the adult form. The embryos may gain entrance to the body by the swallowing of infected water, food or dirt. It is improbable that they are spread by winds, as drying usually is fatal to them. Direct penetration of the skin from contaminated water is claimed by Looss.

The prophylaxis should embrace the use of uncontaminated or sterile drinking-waters only, and care as to personal cleanliness, particularly as related to the hands, finger-nails, and all substances placed in the mouth. To avoid the disease in sheep and other live stock, Stiles urges the sys-

tematic draining and burning of pastures. The soil should also be turned by plowing. To this may be added the importance of segregating or treating diseased animals with thymol, that re-infection of the pastures may not result. Infected stools may be sterilized by chlorinated lime or milk of lime. From loss of blood, digestive disturbances, and the action of toxic substances liberated by the parasites, a severe anemia may be produced.

The whip-worm (*Trichuris trichura*, *Trichocephalus dispar*) occurs often in large numbers in the intestines of Europeans and Asiatics. Anemia, diarrhea, and even beri-beri, have been ascribed to its action; but it is often present without symptoms, and care should be taken that they do not spread promiscuously over the soil.

Trichinella (*Trichina*) *spiralis* enters the alimentary canal, in a larval form, encysted in diseased pork. Within a few days it develops to maturity in the intestines, and gives rise to broods of embryos that invade, through the tissues or circulatory channels, the voluntary muscles. Here they become encysted and may retain their vitality for 15 or 20 years. They produce severe intestinal disturbances, eosinophilia and finally marked tenderness of the voluntary muscles. If the respiratory muscles be invaded by large numbers of embryos, death may result from asphyxia.

Hogs are usually infected by eating infected rats or meat. Care should be taken that the pig pens are kept clean and free from vermin, and that hogs are not fed with condemned meat unless this has been thoroughly cooked.

Food made of uncooked or imperfectly cooked pork should be strictly avoided. Hertwig found that pieces of pork the thickness of the thumb could be boiled for twenty-two minutes without killing the contained trichinæ, and showed that there was greater danger from cooked sausage in which the meat was coarsely minced than from sausage made from finely minced meat. Bloomer and Neumann have reported an epidemic involving nine persons in two Italian families that ate sausage made of coarsely minced pork scraps. The sausage had been boiled in its manufacture, and was usually fried for the table. This indicates the necessity for very thorough cooking. A temperature sufficient to coagulate protoplasm and turn the meat from the raw brown to the opaque cloudy color of cooked meat will kill the parasites. The methods of pickling and preserving hams and other portions of hogs by immersion and by injection with preservatives seems also to destroy them, for infection from the imported American meat in Germany is practically unknown. Inspection, while a safeguard, is expensive and not absolutely trustworthy, as carelessness or cupidity may permit the sale of diseased meat. Dependence should, therefore, be placed upon thorough cooking only.

The Guinea-worm, "thread worm of Medina" (*Dracunculus* or *Filaria medinensis*), undergoes an intermediate existence in certain fresh water crustaceæ. It develops in the subcutaneous tissues of man, and may attain a length of 60 to 100

cm. It produces marked local irritation and at times abscesses. It is usually removed by securing the extremity of the worm, which is near the surface of the skin, and coiling it about a small stick. By slowly winding the stick from day to day the worm may be gradually extracted without rupture. Should the body of the worm break beneath the skin, the liberation of embryos and possibly also of toxic substances leads to abscess formation and severe local disturbances.

Several forms of filaria live in the blood- and lymph-vessels, the name *Filaria sanguinis* being given to all. The four principal varieties are the *Filaria nocturna* (*Filaria bancrofti*), *Filaria diurna* or *loa*, *Filaria perstans*, and *Filaria demar-quay*. The *Filaria nocturna* (*Filaria sanguinis hominis*) has been especially investigated by Manson, who has shown that it is inoculated by the bites of certain mosquitoes. In man, the adult lives in the lymphatics, the embryos entering the circulating blood in large numbers at night, or while the patient is resting. The *Filaria diurna* is usually found beneath the conjunctiva. The *Filaria perstans* has been found in the bodies of persons afflicted with the peculiar disease "African lethargy," or "sleeping-sickness of the Congo." Its precise relation to sleeping sickness is as yet unsolved. The methods of preventing the dissemination of filaria by mosquitoes, is considered in a later section.

TREMATODES OR FLUKES.

Bilharziosis, a disease chiefly occurring in Egypt, is caused by the *Schistoma* or *Schistosomum hematobium* (*Distoma hematobium*, *Bilharzia hematobium*). The adult lives in the blood and produces eggs with pointed spurs that lead to ulcers in the walls of the capillaries, and are a frequent cause of the endemic hematuria of Egypt. The worms are found chiefly in the portal system and may give rise to *intestinal hemorrhages*. The disease often persists for many years.

Fasciola hepaticum (*Distoma hepaticum*) is a fluke, inhabiting the biliary passages, giving rise to ulceration, icterus and severe hepatic disturbances that may end fatally. The ova may be found in the stools.

Distoma westermanni is a bronchial fluke that is the cause of an epidemic parasitic *hemoptysis* occurring in China, Japan and Formosa.

The precise method of invasion of the body by trematodes is obscure. It is possible that insects serve as intermediate hosts. The disinfection of the discharges of those affected should be practiced and methods to prevent the contamination of food or drinking water observed.

CESTODES OR TAPEWORMS.

Taenia saginata or *mediocanellata*, the unarmed or beef tape worm, is the most common tape worm in the United States. The measles or scolex occurs in the muscles of cattle, and when ingested, develops into the adult (strobile) in the

intestinal tract of man. The disease is preventable by the avoidance of uncooked beef as food.

Much less common in America is *Taenia solium*, the armed or pork tapeworm, the measles of which exists in the flesh of swine, the adult in the intestine of man. Occasionally, from the ingestion of the eggs, the measles invades the human muscle, producing small cysts, and is then called the *Cysticercus cellulosæ*. Cysticerci may likewise occur in the brain. The measures of prevention are similar to those advocated against trichinella.

Bothriocephalus latus (the fish tapeworm or pit head) is the largest of the tapeworms of man. It chiefly occurs about the lakes of Neufchatel and in Scandinavia, and may occasion severe anemia. The measles is found in certain fish, especially the pike and turbot, and it is by eating the raw flesh of affected fish that the disease is contracted. The parasites are destroyed by cooking but methods of smoking or pickling fish may be unreliable.

Taenia echinococcus, the dog tapeworm, occurs only as an embryo in man, being found as an adult tapeworm in the intestine of the dog. It is the smallest of the tapeworms, having but four segments and being 4 mm. in length. After ingestion the embryos invade the walls of the intestine, enter the organs, and produce echinococcus or hydatid cysts. These may be multiple and may acquire large dimensions. In man they are more frequent in the liver, but may occur in any organ. The eggs are present in the intestinal contents of affected dogs, and the disease is usually contracted through close association with these animals.

Rare forms of tapeworm in man are *Taenia nana* (the dwarf tapeworm), that measures 2 to 3 cm. in length, and is believed to pass a larval stage in an insect or snail; *Taenia cucumerina* (*Taenia canina*, *Taenia elliptica*), a common tapeworm of cats and dogs, that passes an intermediate stage in fleas; and *Taenia flavopunctata*, of which little is known.

Diagnosis.

The recognition of intestinal parasites plays an important part in the prevention of these diseases. Usually it may be accomplished by examining the stools for the adult forms or the eggs. A small drop of the liquefied fecal matter taken from near the surface, should be spread out in a drop of water on an ordinary slide, covered with a cover-slip, and examined under a $\frac{1}{3}$ inch or 8 mm. objective. If this examination prove negative, Stiles recommends a method of washing and sedimenting the feces. One or two ounces of dry or fresh feces are mixed with from one to four pints of water, strained, washed thoroughly, permitted to settle, and then decanted down to the sediment. This procedure is repeated as long as any matter will float. Finally, the agitation is conducted in a narrow bottle or graduate, and after thorough settling the sediment is examined. If there is much coarse material, this may be removed by washing the finer portions

through a sieve. Centrifugation is rarely necessary.

For the detection of *Strongyloides intestinalis* (*Anguilla stercoralis*), Leichensten suggests that a small excavation, into which a little water is poured, be made in the solid feces. If the parasites be present, they will usually be found in a short time in the water, especially if the preparation be kept at a temperature from 30° to 35° C. (86° to 95° F.)

The eggs of the uncinaria are embryonic ovals with a thin shell, the protoplasm being unsegmented, or in the early stages of segmentation. Similar eggs are those of *Ascaris lumbricoides*, *Oxyuris vermicularis* and *Trichocephalus dispar*. The first have a thick, gelatinous, often mammillated covering and the protoplasm is not segmented. The second have a thin asymmetric shell, one side of which is nearly straight, while the eggs of whip-worms possess a smooth, thick shell, apparently perforated at each pole, and containing unsegmented protoplasm.

In examining for segments of tapeworm or for the round worm of larger size the fecal material should be screened through a coarse sieve of metal or gauze. For *Amoeba coli*, particles of the freshly passed dysenteric stools should be placed on a warm slide and examined at once. When kept warm and in a fresh condition, the amebæ continue their characteristic movements, and so are easily recognized.

CHAPTER VIII.

EXTRINSIC FACTORS OF DISEASE.

VEGETABLE PARASITES.

BACTERIA.

Morphology.

Bacteria are minute unicellular plants resembling algae, that, as they seem to multiply by simple fission, are grouped under the head *schizomycetes*. They show three chief varieties as to form, being either (1) globular or oval (*cocci*), (2) elongate or rod-shaped (*bacilli*) or (3) spiral (*spirillæ*). By peculiarities in their method of division, or by the formation of mucilaginous products, cocci may occur, singly (*monococci*), in pairs (*diplococci*), in fours (*tetragenococci*); forming cubical figures (*sarcinæ*), chains (*streptococci*) or irregular clusters (*staphylococci*). A number of organisms of a higher type such as those of actinomycosis and madura foot, although usually classed with bacteria, resemble molds. The bacillus of diphtheria and of tuberculosis indicate by their tendency to form branches, that they also are of a higher class. Bacteria often show *pleomorphism* or variations in form. Thus a diplococcus isolated from erysipelas may grow as a streptococcus in artificial media, the bacillus of plague often resembles a coccus and the diphtheria bacillus is subject to variations in length, breadth and in the form of its poles. From conditions unfavorable to growth, bacteria may develop marked irregularities in shape, termed *involution forms*. Peculiarities in form have no

constant relation to peculiarities in function, or to the pathogenicity of bacteria, nor are they, as a rule, sufficiently destructive to enable the interpretation of species. Bacteria consists chiefly of an albuminous substance, together with variable amounts of fat and carbohydrate, enclosed in a cell wall and apparently contain a large nucleus. Their unit of measurement is the *micron* or micromillimeter ($\frac{1}{25,000}$ inch) represented by the Greek letter μ . Cocci have an average diameter of 1 micron, the bacilli an average length of about 3 microns, while their width is usually less than 1 micron. Some are so small that they pass through the closest filter and are with difficulty recognized under the highest magnification; others so large that they have been detected by a simple lense. A number of the bacilli are flagellate or have projecting hair like processes (flagellae), often important as organs of locomotion. Some bacteria as *Bacillus typhosus*, *spirillum cholerae*, *Bacillus coli communis* are motile; others, as most cocci, *Bacillus anthracis* and *Bacillus tuberculosis*, have little or no motion.

Reproduction.

Apparently bacteria multiply by simple fission, this under favorable conditions occurring at such short intervals as to give them enormous reproductive powers. With certain species when the conditions for growth become unfavorable, granules appear within the bacillus that collect and finally are transformed into a refractile globule or oval mass surrounded by a tough, resisting capsule. These *spores* have a much greater resistance to unfavorable influences than the original bacillus, so that more powerful bactericidal measures are required against *sporogenous* than *asporogenous* bacteria. Under favorable surroundings each spore liberates a single bacillus from which it is evident that the object of spore-formation is to perpetuate the life of the species rather than for reproduction. *Bacillus anthracis*, *Bacillus edematis maligni*, and *Bacillus aerogenes capsulatus* are the principal sporogenous bacteria concerned in pathologic processes.

Life Requirements.

Heat, moisture and appropriate nutriment are essential to the vital activities of bacteria.

Heat.—Those forms invading man grow best about the temperature of the body, 37° C. (98 $\frac{3}{5}$ ° F.). At lower temperatures they become dormant, and freezing, especially alternate freezing and thawing, may gradually destroy them, although many individual bacteria withstand a prolonged exposure to the temperature of liquid air. In general, *refrigeration* is to be considered as an antiseptic rather than a bactericide. As the temperature is raised bacteria first *attenuate* in virulence and then are destroyed. A number perish at a temperature of 50°-55° C. (122°-131° F.) and few are able to withstand a temperature of 65°-70° C. (149°-158° F.) probably because this is sufficient to coagulate protoplasm. Spores may endure a moist heat of from 80° to 100° C. or even more, while much higher degrees of dry heat are borne.

The varying resistance of pathogenic bacteria to heat is shown in the following table:

THERMAL DEATH-POINT OF BACTERIA

Organism	Observer	°C.	°F.	Exposure (Min.)
<i>Spirilla cholerae</i>	Sternberg	52	125.6	4
<i>Bacillus typhosis</i>	Sternberg	56	138.8	10
<i>Bacillus anthracis</i>	Chauveau	54	129.2	10
<i>Bacillus mallei</i> (of Glanders).....	Löffler	55	131.0	10
<i>Pestis bubonica</i>	Rosenau	70	158.0	10
<i>Bacillus diphtheriae</i>	Löffler	60	140.0	10
<i>Streptococcus erysipelas</i>	Sternberg	54	129.2	10
<i>Staphylococcus p. aureus</i>	Sternberg	58	136.4	10
<i>Diplococcus pneumoniae</i>	Sternberg	52	125.6	10
<i>Gonococcus</i> (1 observation).....	Sternberg	60	140.0	10
<i>Anthrax bacilli</i>.....	.....	54	129.0	10
<i>Anthrax spores</i>	Sternberg	100	212.0	4
<i>Tetanus spores</i>.....	.....	100	212.0	10
<i>Tubercle bacilli</i>	Schaal & Fischer	100	212.0	4
<i>Tubercle bacillus</i>.....	.....	80	176.0	5
<i>Vaccine virus</i>	Carston & Coest	54	129.2	10
<i>Hydrophobia Virus</i>	Sternberg	50	140.0	10

In general the results here given represent exposures to moist heat. They do not in all cases show the minimal exposure required. Delepine found that anthrax spores are killed by a current of saturated steam free from air, in thirty-five seconds. Different species of the same organism may vary in resistance. Finally, it should again be noted that virulence usually is lost at a much lower temperature than vitality, and one should remember that no known microorganism capable of exciting disease, can withstand boiling water at a temperature of 100° C. (212° F.) for ten minutes. Thus, in practical disinfections, microorganisms of greater resistance may be ignored.

Moisture.—The bacterial body is composed of about 85 per cent. water, and few bacteria will grow except in liquids or upon moist surfaces. Dryness produces attenuation in virulence and finally the death of the microorganism, the time required varying with the species, the degree of dryness, temperature and the protection afforded by albuminous or other associated material. Upon this factor probably depends the relatively greater healthfulness of dry climates, soils and dwellings. Spores may resist prolonged drying, yet are unable to develop into bacteria except in the presence of moisture. Desiccation, therefore, is a very important factor in natural disinfection, and, in general, has an important bearing upon sanitation. It has been employed for ages as an antiseptic in the preservation of meats and dead bodies.

Nutriment.—Although a few forms are able to subsist upon simple compounds or even inorganic matter, most bacteria require proteid food. The addition of certain salts and, for some species, glycerin, glucose and other substances facilitates their growth. Most bacteria grow best in a neutral or slightly alkaline medium, while acid media are suitable for molds. Virulence is often best maintained when the bacteria live in a medium of unaltered animal proteids. For example, to retain the virulence of streptococci, pneumococci, or plague bacilli, it is customary to seal them in glass tubes with the blood of a rabbit. Upon blood their virulence is much better maintained than upon bouillon made of meat. The gonococcus does not grow upon the ordinary media

made from the flesh of lower animals, while colonies form upon human blood serum.

To render their food diffusible, bacteria elaborate various *enzymes*; *proteolytic*, *amylolytic*, *fat splitting*, *inverting*, and *milk curdling*. Thus, they are all able to change starches into dextrose, and dextrose into sugar; to invert cane sugar into glucose, to convert proteids into albumose and peptone; break up fats into glycerin and fatty acids and coagulate milk. We must not conclude that these products are necessarily similar to those produced by the action of the saliva, gastric juice, pancreatic secretion and the bile. Products of bacterial digestion may be intensely toxic in man.

Air.—Bacteria may be unable to vegetate without free oxygen (*obligatory aerobic bacteria*), or like the tetanus bacillus and the bacillus of malignant edema unable to grow in the presence of free oxygen (*obligatory anaerobic bacteria*). Forms such as *bacillus anthracis*, *bacillus diphtheriae*, *bacillus typhosus* and *streptococcus pyogenes*, capable of growing without oxygen as well as with it, are termed *facultative anaerobic bacteria*. Within the body anaerobic bacteria are only able to multiply when protected from the air or associated with some oxygen absorbing species.

Light.—As a rule actinic rays of light interfere with bacterial growth and development, and the more intense rays have destructive action. Dark or dimly lighted places, therefore favor bacterial development. The dust from rooms occupied by persons with pulmonary tuberculosis is much less apt to contain virulent tubercle bacilli if the rooms are flooded by daylight.

Toxic Products.—Bacterial infections are almost universally bacterial intoxications. As a result, the toxic products of bacteria have an especial importance. Mention has already been made of *toxic albumoses*, *peptones* and *fatty acids* that result from the action of bacteria upon nutritive media. More important are the diffusible toxic substances (toxins) elaborated by certain bacteria. Among these are the most poisonous substances known. The precise nature of these toxins is obscure, as they have never been isolated. Roger concludes that the toxin of diphtheria can poison a living being 20,000,000 times its own weight. Even this toxicity seems to be far surpassed by the toxin formed by bacillus tetani. The toxin produced by species of bacteria is as distinct as the alkaloids formed by different species of plants. Note, for example, the differing functional reactions associated with tetanus, cholera, and malignant pustule. *Ptomaines* may be derived from toxins. Proteid substances found in the bodies of bacteria are toxic. These *bacterial proteids* are liberated upon the death and disintegration of bacteria and may be obtained in solution by grinding the bacterial bodies, boiling them in solutions of glycerin or other methods. Tuberculin made from tubercle bacilli and mallein made from the bacilli of glanders, are examples of solutions of bacterial proteids. When introduced into the body these substances are followed by changes in cellular function and in the composition of the normal fluids of the

body. By using graduated, repeated doses of toxin the body in time develops immunity, and in the blood serum is found an element (antitoxin) capable of neutralizing the action of toxin introduced into susceptible animals. In general, the action is specific; the antitoxin of diphtheria protecting against diphtheria toxin, that of tetanus against tetanus toxin.

By the introduction of living or dead bacterial bodies an antibacterial form of immunity may be produced, so that in an animal so treated, bacteria introduced into one of the serous cavities will promptly collect in clumps (agglutinate) and then dissolve. (*Pfeiffer's phenomenon*.) Yet the animal's serum fails to show this solvent (lysogenic) action outside the body unless serum from an untreated animal be added. Similarly when introduced into the body of an untreated animal it may render its body fluids capable of dissolving bacteria. These various reactions contain the essence of our present knowledge regarding infection and immunity. Their nature is obscure, but pending more exact information many bacteriologists have accepted, as a working hypothesis, the theory of Ehrlich.

To render the lateral-chain-theory the more intelligible we shall try and consider it in a simple fashion, avoiding many technical expressions, and reference to the large amount of the intricate experimental evidence upon which it rests.

Ehrlich's Lateral-Chain-Theory.

Individual cells making up the organism may be assumed to consist of a central body having a multitude of affinities (*side chains*) ready to receive nutritive substances. These affinities (*receptors*) unfortunately, also permit the union of poisonous substances with the cell, often with disastrous consequences. However, it is a physiologic rule that the utilization of a cell product is followed by its renewal and often by its overproduction. And so the utilization of cell affinities in the union of the poison with the cell may be followed, especially if the poison be repeatedly introduced, by a great regeneration of receptors and the overplus may escape into the blood. Should more of the poison now be introduced into the body these free, circulating affinities unite with it before the cells are reached. Thus the dagger finds a scabbard outside the tissues and the cells go unscathed. As it is also assumed that the toxic substances are only able to unite with the cell by means of certain free combining elements (*haptophore group*) it is obvious that when these enter the free affinities circulating in the blood the toxic substance proper (*toxophore group*) is no longer able to unite with cells and, therefore, is innocuous. This explains why the introduction of a poison—say nicotine, arsenic or a bacterial toxin, into the body at first produces symptoms; the poison uniting with the cell and producing functional or structural disturbance. After repeated introduction the symptoms resulting from the poison gradually grow less, excessive affinities are being formed and are thrown into the blood. Finally, the poison no longer produces ill-effects—the cells have established a per-

sistent over-production of the specific affinity—immunity has been attained. The immunizing substance thus thrown into the blood when efficient against a toxin is antitoxin. As the immunity thus produced is specific, acting only against a particular poison, it is assumed that each toxic substance has its own special antitoxin. The number of receptors possessed by cells must, therefore, be almost innumerable.

Lysins.—When foreign cells such as bacteria, red or white blood corpuscles, epithelial cells, or spermatozoa, are introduced into the blood, special receptors are regenerated and thrown into the blood in the manner above described. Instead of being termed antitoxin this circulating substance is termed, by various writers (*immune body, intermediary body, ceptor, substance-sensibilatrice, fixator* or *copula*). Strangely enough this immune body alone does not affect the foreign cells, but it serves as a go-between, linking to them a second substance found in the blood of all normal animals. This second substance possesses ferment-like qualities and when linked to the foreign cells soon dissolves them. It has been variously termed *complement, complementary body, addiment, alexin* or *cytase*. In action the linking (immune) body is specific. Thus, when generated by the injection of tetanus bacilli, it will unite the bodies of tetanus bacilli to the ferment substance, but not those of diphtheria bacilli or foreign blood cells. As a result we have *hemolysins* active only against red blood corpuscles, *tetanolysin* active only against the bacilli of tetanus, *staphylolysin* against staphylococci and similar substances. The immune body is quite stable, while the complementary body, which seems to be a product of the leucocytes, disappears from blood on standing or moderate heating.

To be able to destroy invading bacteria, the animal body must contain not only sufficient complement, but also the proper form of immune body to render it active. Thus it is, that normal animals with sufficient complement but no immune body, fail to resist bacterial invasion, while immunized animals may suddenly lose their resistance because they have exhausted the supply of complement. In explaining racial or *natural immunity*, Ehrlich assumes that the body cells were formed with the special receptors that enable the toxic substance to effect a combination, absent; or, that the blood contains some special salts or other ingredients that make neutralizing unions with the poison.

While the lateral-chain-theory is admitted to be imperfect, it is in accord with and seems to interpret a large mass of experimental evidence.

CHAPTER IX.

THE DIFFUSION OF THE FACTORS OF DISEASE.

INVASION OF THE BODY.

Microorganisms constantly enter the human body, being inhaled with the air we breathe, swal-

lowed with our food and gaining entrance by way of the broken or unbroken skin, or mucous membranes through the contact with contaminated objects. The number of bacteria with which the body has to contend varies greatly with the environment, being largest in urban life, and especially amid the unsanitary conditions of "slums" and "congested districts," and, as a rule, least amid rural surroundings. The body is well supplied with natural defenses, entirely sufficient against ordinary assaults, but becoming inefficient when the number or virulence of the invading parasites is great.

Thus, there are surfaces covered by epithelium to limit or prevent the entrance of bacteria or their products, tissue cells that supply antidotal substances to combine with and neutralize their toxic compounds; or their products, phagocytic cells that may gather to destroy them; lymphoid accumulations that may yield lysogenic substances to disintegrate and dissolve parasitic cells; while the body-fluids contain principles unfavorable to the growth of many bacteria.

Relative Resistance of the Different Tissues.

The different tissues and organs of the body not only vary greatly in their ability to resist pathogenic organisms, but also show degrees of resistance varying with the character of the parasite. For example, the tubercle bacillus most frequently affects the lymphatic glands, the lungs, bones and serous membranes. Less frequently it attacks the liver, spleen, kidneys, adrenals or skin. It infrequently produces serious disease of the heart, thymus gland, nerve-centres, adipose tissue, or voluntary muscles. The pneumococcus invades the mucous lining of the respiratory passages and the serous membranes, but rarely causes disease of other tissues, while the gonococcus finds the mucous membranes especially vulnerable, rarely affects the larger serous membranes, and has no effect upon the skin. On the other hand, there are many forms of parasites, such as those of tinea and scabies, that only invade the tissues of the skin, while trichina chiefly affect muscular tissues. The pus-forming organisms may produce the greatest destruction in parts having poor vascular supply, such as the adipose and fibrocellular tissues. The resistance of certain organs may also be influenced by *evolutionary and developmental changes*. For example, apparently useless remnants, such as the vermiform appendix are more vulnerable to parasitic invasion than actively functioning organs. Woods Hutchinson suggests that the greater vulnerability of the lungs to tuberculosis and other infectious processes may be ascribed to the fact that these organs were among the last evolved in the evolutionary process, the organs of more remote origin having a greater stability and resistance acquired through ages of functioning.

Supernumerary parts may lack the resisting powers of normal organs.

(To be continued.)

RULES AND REGULATIONS GOVERNING THE AMBULANCE SERVICE IN THE BOROUGH OF BROOKLYN.

Approved by the Board of Health of the Department of Health of The City of New York, at a meeting held Jan. 21, 1903.

All districts have been abolished, and the police have been directed to notify the ambulance surgeon nearest to the case demanding the service of a surgeon.

In order to avoid unnecessary strain upon the horses of the service, the police will notify the surgeon whenever the ambulance is needed for the transportation of patients. If the services of the surgeon only are required, he may attend calls in a light wagon.

The duties of the surgeon-in-chief of the ambulance service are to inform himself of the fitness of applicants for the position of ambulance surgeon, to supervise the operations of the service, to inspect the ambulances and their equipment, and to act in a supervising and directing capacity whenever accidents of sufficient magnitude occur to require the attendance of several ambulances.

Ambulance surgeons must possess the qualifications prescribed for hospital internes, and must have had six months' experience either in practice or in hospitals. No surgeon not duly appointed must be assigned to ambulance duty without the authorization of the assistant sanitary superintendent.

No ambulance is to be sent in response to a call unless it is in charge of a duly authorized surgeon.

Although unnecessary delay is to be avoided, ambulances must not be driven through the streets at such speed as to endanger the lives or limbs of the public. The bell is to be rung only in crowded thoroughfares and as a means of clearing the way, the city ordinances giving an ambulance the right of way as against any person, carriage or incumbrance. It is the duty of the police to enforce this ordinance.

When called to a case, the ambulance surgeon should not attempt to do more than relieve urgent symptoms, after which he must exercise his discretion as to removal, remembering always in case of doubt that it is better to remove a case that should be left than to leave a case that should be removed. If removal is deemed advisable, the patient must be taken to his home, or to the hospital preferred by him if he expresses any choice as to destination, without interchanging, other-

wise the patient must be taken to the nearest hospital.

Every case in which there is partial or complete loss of consciousness must be removed to the nearest hospital, or home, when so requested by friends of the patient, whether the patient is apparently under the influence of alcohol or not.

When requested by friends or relatives to remove a patient to his home, the surgeon must obtain the name and residence of such friends or relatives, and incorporate the same in his monthly report.

When death occurs in transit, the body should be taken home if the residence of the deceased is known, otherwise, to the morgue. When death occurs before the arrival of the ambulance, the body should not ordinarily be removed, but this rule may be violated whenever in the opinion of the ambulance surgeon he can serve any good purpose by its removal.

In case of removal of a patient to the Borough of Manhattan, the surgeon must arrange by telephone to have an ambulance meet him at the Manhattan end of the Bridge, so that the transfer of the patient may be accomplished with the least possible delay.

If the appropriate hospital should refuse to receive or should delay unnecessarily the reception of a case requiring prompt attention, the ambulance surgeon will telephone to the department for instructions, or if that office is closed, to the residence of the assistant sanitary superintendent.

Under no circumstances whatever shall surgeons ask for or accept a fee.

Before returning from a call, the ambulance surgeon will write down in duplicate on slips provided for that purpose the date, time, origin and location of the call, the name, residence, age, nativity and occupation of the patient, and the diagnosis and disposition of the case. One of these slips is to be signed and given to the police officer in attendance on the case; the other is to be retained by the surgeon, who will add to it later the time of return. As soon as possible after the first of each month, ambulance surgeons will send to the department of health, in the borough of Brooklyn, on official forms furnished by the department, a report of the previous month's calls.

Immediately before leaving hospitals, in response to a transfer call and immediately after returning from all calls, ambulance surgeons will notify police headquarters.

A true copy.

EUGENE W. SCHEFFER,

Secretary pro tem.

New York, Jan. 21, 1903.

BOOK REVIEWS.

A TEXT-BOOK OF MATERIA MEDICA, THERAPEUTICS AND PHARMACOLOGY. By George F. Butler, Ph.G., M.D. Fourth edition, thoroughly revised. Philadelphia and London, W. B. Saunders & Co., 1902. 896 pp., 2 pl. 8vo. Price: Cloth, \$4.00; Sheep or Half-Morocco, \$5.00.

We are glad to receive this valuable work with additions which bring it up to date. Changes are to be noted in many parts. They record recently discovered facts in this department.

SAUNDERS' MEDICAL HAND-ATLASES. ATLAS AND EPI-
TOME OF ABDOMINAL HERNIAS. By Dr. Georg Sultan. Authorized Translation from the German, Edited by William B. Coley, M.D. Philadelphia and London, W. B. Saunders & Co., 1902. 277 pp., 36 col. pl. 12mo. Price: Cloth, \$3.

This is one of the most valuable of the Saunders' series of atlases, covering, as it does, a most important field in abdominal surgery. The general grasp of this subject displayed by the author, and his ability in presenting his knowledge evidence exact observation and a notable teaching ability. A chief point of value in this very excellent work is the attention given to the treatment of hernia.

The work opens with a general discussion of hernia. Then comes the etiology, the diagnosis, and the general considerations of the treatment. Under the accidents of hernia are treated all the complications of the disease. The several varieties of hernia are then separately considered. We recommend especially the author's study of the mechanisms of hernia.

As may be said of all of this series of books, the illustrations are superior. We recommend this as among the most valued of text-books on this important subject.

J. P. WARBASSE.

PRINCIPLES AND PRACTICE OF BANDAGING. By Gwilym G. Davis, M.D., Philadelphia, P. Blakiston's Son & Co., 1902. XI., 17-146 pp. 8vo. Price: Cloth, \$1.50.

This volume is based on a previous one by the same author, issued in 1891. It has been made practically a new book by the redrawing of all the illustrations and the rewriting of the text. The author calls attention to the fact that since gauze has in a manner taken the place of muslin for bandage material, the artistic application of bandages is becoming a lost art in the hands of many surgeons. This he insists should not be so, for there will always remain a right and wrong way to apply a bandage. Simplicity, he insists, should be the feature of the modern bandage. The old-time writers describe the most intricate bandages, winding about in a most unusual and complicated manner. The moderns simplify these things and do them better.

This book is a good guide in the use of bandages; and we have pleasure in complimenting the author on his work.

J. P. WARBASSE.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. VOL. VIII. PEDIATRICS AND ORTHOPEDIC SURGERY. Edited by W. S. Christopher, M.D., John Ridlon, A.M., M.D. and Samuel J. Walker, A.B., M.D. Chicago, Year Book Publishers, 1902. 231 pp. 12mo. Price: Cloth, \$1.25. Price of the Series (10 vols.), \$7.50.

This book is dedicated to the proposition that pediatrics is the constructive branch of internal medicine. The factor which affects the child, but is eliminated from consideration in the adult, is development. It is the distinguishing feature and the key-note of pediatrics.

The matter in this book consists of abstracts from

current medical literature classified and placed, when possible, under etiological headings. It is notable that some of the headings have no text under them to illustrate the subject. The blanks, however, are instructive, for they show which subjects have not received attention at the hands of medical writers.

A most interesting chapter in this work is that on growth and development, with studies in heredity. These represent the measurements of over 6,000 school children. The index is excellent, and adds greatly to the value of the book.

J. P. WARBASSE.

MANUAL OF GYNECOLOGY. By Henry T. Byford, M.D. Third Revised Edition. Philadelphia, P. Blakiston's Son & Co., 1902. XXIII., 17-598 pp. 8vo. Price: Cloth, \$3.

This volume is more especially adopted for students' use and that of the general practitioner, hardly as a complete reference book. As a text-book, it ought to be excellent, though the marginal notes with which each page is closely covered would tend rather to confuse the student than aid his memory. They are "overdone," some having but little meaning.

The book is divided into an "Introduction" and "Manual of Gynecology;" the former embodying Anatomy and Physiology, Diagnosis and Treatment, and Gynecological Technic; the latter including Development and Anomalies of Development; Traumatic Lesions of the Genital Tract; Displacements; Inflammations and Hyperplasia; Genital Tuberculosis; Carcinoma; Sarcoma; Myoma, Fibroma, and Fibro-Myoma; Cystic Tumors; Lipoma, Papilloma, and Vascular Growths and Tumors; Extra-Uterine Pregnancy, Pelvic Hematocele and Hematoma; and Functional and Nervous Diseases.

These are all treated in an interesting manner, suitable for the student and general practitioner, as intended by the author.

The chapter on "Aseptic and Antiseptic Detail" seems hardly complete, too little stress being laid on the use of rubber gloves, while much more could be written, even for students, of hand sterilization. The absence of the use of formaldehyde as an agent for sterilizing the hands, is noted, also the scant treatment which the preparation of catgut receives (the Cumol method not even being mentioned). The student is not informed when to elect the use of plain or chromic catgut, silk, or silk-worm gut. Silver wire, as a matter of historical detail, is passed by. With antiseptics and asepsis as the keystone to our surgical successes, it is imperative that the student be taught carefully and in detail all methods, why the best are employed and others abandoned. He should be thoroughly grounded in antiseptic technic. The subject should not be passed over so lightly.

It seems strange that a specialist of Dr. Byford's repute should advocate the use of slippery elm tents sterilized (?) by dipping into five-per-cent. carbolic solution, and then introduced into the cervical canal for dilating purposes. Slippery elm tents in common with tupulo, have been regarded as carriers of infection, and their use pronounced dangerous. The less students are taught to perform cervical dilatations, and especially with graded sounds in office practice, except under the most careful asepsis, the fewer patients will we have with infected uteri and tubes. Too little attention is given to the operations of Dilatation and Curettage, and with the exception of Kelly's and Reed's books, the subject is passed over in a most perfunctory manner. The dangers are too little emphasized and the student is not sufficiently warned of the indications and contra-indications.

In reading this book we must bear in mind, as before stated, that the author intended it for students and the

general practitioner only, yet it seems as if the prognosis of carcinoma might be enlarged upon. Mortality statistics are not even quoted. Neither is the student informed of the almost utter hopelessness of the cervical variety, nor sufficiently impressed with the bad prognosis after operative interference. The treatment of inoperable cases is passed by entirely.

It is a pleasure to note that Tuberculosis of the female genitalia receives so much attention from Dr. Byford's pen. This pathological condition, especially of the adnexa, the diagnosis of which we know so little, is given generous space and deserves special mention. It is yet an unknown field in diagnosis with much to learn.

Dysmenorrhea is divided into the usual four classical types—neuralgic, inflammatory or congestive, mechanical and membranous. It is safe to assert that this theoretical classification is not always borne out at the bedside, as the student soon learns, and that one of the difficult problems in gynecology is to differentiate these different types one from the other and to effect a cure. Gynecologists record many failures, while it is a well-known fact that these different types are not easily diagnosed. That there should be some special classification is evident, but it should be one which would hold at the bedside. Medical students are taught year by year the usual classification of dysmenorrhagic types, and made to believe it, till they learn by actual experience in their professional lives that theory and practice are two different things.

On the whole, the book is a finished guide for the student and an admirable text-book. It is well illustrated, with excellent typographical work, and written in a concise and clear style by a specialist whose reputation is of the highest. The fact that there has been a demand for a third edition is commendation enough in itself and is proof of excellence. C. R. HYDE.

ELEMENTS OF BACTERIOLOGIC TECHNIQUE: A Laboratory Guide for the Medical, Dental, and Technical Student. By J. W. H. Eyre, M.D., M.S., F.R.S. (Edinb.). Philadelphia and London, W. B. Saunders & Co., 1902. 371 pp. 8vo. Price: Cloth, \$2.50.

The admirable work of Dr. Eyre can truly be said to fill a recently felt want. In the effort to treat of the entire subject of Bacteriology in one volume (large or small) most authors have rather neglected the important subject of technique. As a result most of the works on Bacterial Technique are confined to the technical journals, and very few of them are printed in English. We therefore welcome this excellent work as a most valuable laboratory guide as well as a work of reference. The methods described are tried and reliable ones, and what is more important in a work on technique, the illustrations are well chosen and well reproduced. The adoption of the terminology of Chester is an important feature of the book and greatly tends to increase its accuracy. The descriptions of the methods of setting the reaction of media by titration and the color demonstration of the much disputed end-point are very well done.

Altogether, the book is one which will be indispensable in the bacterial laboratory, whether it be medical, dental, agricultural or dairy. E. H. W.

TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John J. Reese, M.D. *Sixth Edition*, Revised by Henry Leffmann, A.M., M.D. Philadelphia, P. Blakiston's Son & Co., 1902. XVI., 17-660 pp. 8vo. Price: Cloth, \$3.

This work presents this subject in a concise way and admirably covers the vast subject dealt with. As a work of reference it is of much more value than many of the more voluminous works on this subject, as it enables the reader to grasp the essential points at once,

without the loss of time so often entailed in the perusal of often irrelevant facts. A. C. BRUSH, M.D.

ELEMENTARY HYGIENE FOR THE TROPICS. By Azel Ames, M.D. Boston, D. C. Heath & Co., 1902.

Of all our American medical authors, none is better qualified to be the author of a book on tropical hygiene than Major Azel Ames, whose studies of sanitary matters and whose experience in the handling of large questions pertaining to tropical medicine have made him our most eminent authority. We recall that it was Dr. Ames who had charge of the vaccination of all of the inhabitants of Porto Rico. From the making of his own vaccine to the hunting out of the last unwilling subject for inoculation, no work of a similar character was ever conducted with more scientific accuracy and military precision than this. And our new colonies are to be congratulated that a book of this sort has been given them, which meets the peculiar conditions of tropical lands, and which has been written by a man so well known as an expert on all matters connected with sanitation and hygiene.

The author's familiarity with the climatic conditions of our tropical possessions, and the hygienic necessities of their inhabitants makes this a book of much value. It is essentially a primer for, we may say, primitive people; but they are the people who need just this book.

The author takes up first the air and its impurities; then food and water; the cooking of food; clothing; exercise; rest and sleep; personal habits affecting health; home and domestic conditions; preventable contagious diseases; the care of food; disinfectants; and first aid to the injured. These are some of the subjects treated.

We compliment the author on his work.

J. P. WARBASSE.

REGIONAL MINOR SURGERY: Describing the Treatment of Those Conditions Daily Encountered by the General Practitioner. By George Gray Van Schaick, M.D. New York, International Journal of Surgery Co., 1902. 226 pp. 8vo. Price: Cloth, \$1.50.

In the teaching of surgery we believe too much time is devoted to major, and too little to minor, surgery. After all, the most we can hope to give a student is but a bird's-eye view of a large portion of the great domain of surgical procedure. He ought to get, however, a thorough grounding in the details of minor surgery. A larger portion of his time could be profitably spent in mastering the technique of the simpler procedures, which will prove of inestimable value in active practice.

Dr. Van Schaick presents in this little volume a very practical and scientific treatise of those common surgical procedures we are wont to call "minor." Avoiding subjects of a technical character, eliminating bibliography and references, he presents a clear, concise and practical work which will afford pleasure and profit to all who peruse it. WILLIAM FRANCIS CAMPBELL.

A MANUAL OF DISSECTION AND PRACTICAL ANATOMY. Founded on Gray and Gerrish. By William T. Eckley, M.D., and Corinne B. Eckley. Philadelphia and New York, Lea Bros. & Co., 1903. 408 pp. 4to. Price: Cloth, \$3.50.

This volume is really a condensation of the admirable works of Gray & Gerrish. It is Gray & Gerrish regionalized. For the use of students in following their dissections, it is specially adapted. The directions for dissecting and identifying the several structures of the body, are clear and concise, while the arrangement of its matter is orderly and rational. We can commend this volume not only to the student, but to the practitioner who desires a practical and concise presentation of regional anatomy. WILLIAM FRANCIS CAMPBELL.

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, APRIL, 1903.

No. 4

ORIGINAL ARTICLES.

A BRIEF HISTORY OF THE THERAPY OF VARIOUS FORMS OF LIGHT AND RADIO-THERAPY.

BY JAMES MACFARLANE WINFIELD, M.D.,

Lecturer on Dermatology and Chief of Clinic at the Long Island College Hospital, Etc.

In the earliest written records of the human race we find reference to the beneficial effects of light.

The worship of the sun is perhaps the oldest form of religion and those believers made light the great vivifying principle, the chief factor of life, the promoter of health, both mental and physical, while darkness bred disease and death.

In heiroglyphics, antedating the Bible the sun is found figured as the supreme element.

In sacred writings a belief in the life-giving and purifying effect of light is expressed in many ways. Almost the first words in the Bible are "Let there be Light" and chaos and disorder were dispelled by the divine ray. Again, "The Prince of Peace" is symbolized as the "Sun of Righteousness who has risen with healing on His wings." The wicked are represented as "loving darkness rather than light, because their deeds are evil;" and so, throughout the Bible, Light is made the synonym of all good.

The ancient philosophers knew the benefit of sunlight. The shrewd and worldly-wise Diogenes did not take all of his time in the difficult and most disappointing quest for an honest man, but according to Plutarch, spent much of his old age sitting in the direct rays of the sun.

Both the ancient Greeks and Romans were firm believers in the therapeutic effects of the sun bath, and the homes of the wealthy were provided with solaria; the Roman cities had public baths and large sun rooms, for the use of the citizens.

Hippocrates states that old men double their age in winter, when the sun is weak; and in his remarks on fever he directs that those suffering from chills and fever should be exposed to the sun.

Celsus recommends that people with feeble digestions should live in well lighted houses, and advises them to take exercise in the sun and not

in the shade. The sun bath is also advised for dropsy, kidney disease and paralysis.

When the barbarians swept away the culture, knowledge and refinement of the elder nations, light was quenched in the well-named "Dark Ages." With the exclusion of light and air from gloomy castles and dingy hovels, health and intelligence went too; cruelty, deformity and disease ran riot, and outraged Hygiene devastated civilization with God's scourge, the plague.

Between the writings of the ancients and those of the fifteenth century, nothing is found that would indicate that any special attention was given to the effects of light; but in the seventeenth and eighteenth century reference is again found to it as a curative measure.

Humboldt called attention to the effect of light upon the development of animals. He says that "deformities and deviations, from healthy physical development are rare among certain races of men, especially those who wander about naked in the brilliant tropical light; these present none of the deformities so frequently found among those inhabiting a colder climate."

In the early part of the nineteenth century many French and German scientists published theses on the beneficial effects of light upon the human body. In 1848 Perreira, of London, incorporated in his "Elements of Materia Medica and Therapeutics" a chapter dealing especially with the therapeutic effects of sunlight; he calls solar light and heat "the physical but inponderable remedies," and says, "Light acts as a vivifying and vital stimulus, promoting development and nutrition."

It is a matter of common experience that smallpox decreases in summer, owing to the free exposure of the apartments to light and air.

Light inhibits and destroys nearly all forms of bacterial life. It is more than probable that sunlight and pure air have more to do with the cure of tuberculosis than altitude or change of climate.

The discoveries of Newton and Frowenhofer led to the utilization of the various rays of the sun to promote health and growth, but nothing of especial note was attempted until 1860, when Gen. Pleasanton conceived the idea of growing vegetables and fruits in greenhouses constructed of blue and violet glass, thus excluding the chem-

ical rays. The result of this experiment was embodied in a work published in 1877. Gen. Pleasanton succeeded in producing exceptionally fine fruit, and also accelerated the growth of pigs. His theories were the basis of the introduction of the so-called blue and red glass treatment of disease, and for a few years this method was extolled for the cure of tuberculosis and certain forms of nervous disease.

This fad, for the theory did not stand the light of scientific investigation, soon waned and the hope of curing tuberculosis and neurasthenia by this method was relegated to the rubbish heap of exploded medical fancies.

The next important attempt to utilize modified light was made in 1895 when Finsen, of Copenhagen, advocated the use of red light in the treatment of smallpox. He claimed that if patients were placed under a covering of red cloth or glass convalescence was greatly hastened, maturation rarely occurred, and the scarring was slight.

This treatment was not new, for Finsen simply applied scientifically some empirical ideas of the middle ages, when smallpox patients were covered with red cloths.

The theory upon which he based his treatment is well founded, for, if the chemical, or the most refrangible rays of the sun are not allowed to come in contact with the skin, the integument will not become inflamed; this can be accomplished in various ways, by the employment of ointments, painting with densely colored paints, covering with veils, etc. The severe *Erythema solare* of the early summer ceases to be troublesome as the season advances, simply because the natural pigment of the skin grows denser on account of the constant irritative action of the sun; the thickened pigment excludes the chemical rays and the tanned skin is rendered immune to all solar effects.

In spite of the good reports of this method of treating smallpox by Finsen and other European observers, the results were not borne out in this country; and now, less than ten years after Finsen made his report, this therapeutic measure is rarely if ever resorted to, especially in the United States.

Although the beneficial effects of sunlight have been known for many thousands of years, it has never been a popular curative measure, principally because the element is difficult to control, and the ill effects of too much sun, often equal, or even exceed the benefit derived therefrom.

When electricity came to be universally employed for lighting and heating, it was at once seen that here was light that could be held under control, and scientifically applied in curing disease.

Electric light has been, and is employed as a therapeutic agent in the cure of many diseases, but more especially for those of the respiratory organs. It was thought that tuberculosis could be cured by the penetration of the bactericidal ultra violet rays; further experiments have proven that these rays are not capable of penetrating the skin, and that the blue and violet rays are absorbed by the blood. It has been demonstrated that while the electric light is infinitely richer in these rays than the sun, it is evidently not this property that works the benefit in consumption and other bacterial diseases, but rather the improvement of the general condition due to the stimulating effect of electricity; for when the body is exposed for any length of time to the strong illumination of an arc light, the skin is stimulated, metabolism promoted, and the general nutrition improved.

In treating pulmonary diseases the patient's chest is exposed to the rays of a powerful arc light or they sit in a room where a great number of incandescent lights are especially arranged around the walls.

In 1898 Finsen, of Copenhagen, published his results of the treatment of lupus by what is now known as photo-therapy (The Finsen Method), *Le Presse Medicale*, No. 58, p. 17, 1898.

Finsen first applied the concentrated sun rays on the lupus spot, by a specially prepared apparatus; while good results were obtained, the sunlight, especially in Copenhagen, was too uncertain. This led to his experimenting with the arc light, and now he and his followers employ electric light almost exclusively. The heat waves are excluded, and the blue, violet and ultra violet beams are directed upon the surface. To make this treatment effective the parts must be rendered anemic, which is done by a specially devised instrument attached to the apparatus.

Finsen's theory seems to have been that the blue, violet and ultra violet rays would act in lupus by inhibiting or killing the bacteria. As is stated above, the ultra violet rays cannot penetrate the skin, even when derived from electric light, and it is a well-known physical fact that the ultra violet rays of the sun never reach the earth, therefore these rays could have no effect upon lupus; and if the blood is not pressed out of the diseased part, the blue and violet rays will

be absorbed, consequently it is essentially important that to obtain any bactericidal effect, the parts must be made absolutely bloodless.

Finsen claims to cure over 90 per cent. of lupus cases, and as this is a common disease throughout northern Europe, the Danish Government has established and maintains a hospital especially for the practice of the Finsen method.

In 1895 Prof. Roentgen, of Wurtzburg, Austria, accidentally discovered a new form of electrical energy, which is radiated from a highly exhausted discharge tube actuated by an induction coil or static machine.

Not knowing just what these rays were, Roentgen called them X-rays.

This ray has the property of penetrating certain opaque substances, as, for instance, flesh, wood, leather, paper and most fibrous material; while normal bone is not so easily penetrated, metals absorb the ray.

The first application of the X-ray in medicine was for surgical diagnosis, and photographing bone deformities and fractures.

The first therapeutical application of X-ray was in 1897, when Freund, of Vienna, used it in two cases of hypertrichosis. In one case the hairs were removed after an aggregate exposure of 20 hours without producing any dermatitis; in the other, after an aggregate exposure of 44 hours, a violent dermatitis was set up which resulted in necrosis and scarring. This caustic action of the ray followed by destruction of the tissues, suggested to Schiff, of Vienna, the idea of using it in the treatment of lupus.

Simultaneously with Schiff's first experiment, Dr. Philip Mills Jones, of San Francisco, published the report of a cure of lupus by the X-ray.

Since then physicians in all parts of the world have used the ray therapeutically.

The ray has a similar effect upon both normal and diseased skin. After a varying period the skin becomes slightly yellow, then red, the red grows darker, and in some people slight irritation and pricking is felt; this in very sensitive persons may become burning and actual pain.

If the exposures be continued beyond this point the skin may blister and ulcerate, constituting what is known as the X-ray burn.

Various theories have been advanced regarding the action of the X-ray; some claim that it affects the bacteria, others that it is an electrochemical or tropho-neurotic action. But so far it is apparent that no one is positively certain

how this unknown quantity produces a cure, unless it be by promoting absorption.

It is but natural that these somewhat similar therapeutic measures, radio-therapy and photo-therapy, should excite comparison.

The Finsen method is applicable in a very limited range of diseases. It is principally used in the treatment of lupus, the apparatus is expensive and cumbersome, it requires numerous sittings extending over a long period of time; (some of Finsen's cases received daily exposures for over a year before a cure was effected). The application is painful, and it is necessary to have skilled assistants.

The X-ray apparatus is comparatively inexpensive. It is not necessary to have skilled assistants, the treatment is absolutely painless and the range of usefulness is great, for it has been successfully employed in a wide variety of diseases as, for instance, lupus (both varieties), epithelioma, carcinoma, sarcoma, hypertrichosis, acne, chronic eczema, psoriasis, etc.

After careful search through the literature of radio-therapy it is safe to assume that over 90 per cent. of the cases of lupus treated by this method are cured. Only two cases have come under my personal observation, both were cured after 12 exposures, and have remained well for nearly a year.

The results in lupus erythematosus do not appear to be as good as those treated by the Finsen light.

Judging from the reports, radio-therapy has a beneficial and curative effect in about 75 per cent. of epithelioma, including rodent ulcer. My experience is about the same.

At present I have under treatment an exceedingly interesting case of epithelioma, in a man 81 years of age. The cancer involved nearly the whole of the under lip. The universal opinion of the surgeons consulted was that it was an inoperable case, because of his age and the existence of a severe and far advanced Bright's disease.

The malignant growth had been aggravated by the application of caustic pastes so that when the ray was first applied the lip was a foul-smelling, suppurating mass. After the third application the discharge ceased. The ray has been applied 26 times, the average duration of sittings, 12 minutes, and now the disease is practically cured.

The results in carcinoma, especially post-operative, are sufficiently good to warrant the following up of the surgical measure by the X-ray, and from the reports of careful observers radio-

therapy should be employed in all cases of inoperable carcinoma.

During the past year I have used the ray in six cases of cancer of the breast, two primary and four post-operative. The first two received respectively four and eight exposures of ten minutes' duration, extending over a period of three months; in the one receiving four treatments the size of the tumor remained stationary, while previously it had grown rapidly.

In the other case the tumor began to diminish in size after three exposures, when she was last seen, it was at least one-half smaller than before treatment. As these patients were hard to control they were finally lost sight of.

In the four post-operative cases one died from exhaustion after only a few exposures to the ray; in one the skin and cicatrix were thickly studded with new growths, after twelve exposures the small tumors had entirely disappeared and the large ones were greatly diminished in size. The patient is still under observation, and although the ray has not been applied for nearly four months the malignant process does not seem to be making any headway.

The third case of inoperable carcinoma is interesting because it shows microscopically that the X-ray inhibits the growth of the carcinomatous cells. Six weeks after operation the patient was referred to me for treatment because of a rapidly growing tumor situated just outside of the cicatrix. The growth was hard and showed unmistakable signs of malignancy; it decreased after eight treatments; then, for unavoidable reasons the exposures were suspended for nearly three weeks. When the patient again presented herself it was found that the tumor had nearly doubled in size, and the overlying skin was inflamed (not, however, an X-ray dermatitis); surgical procedure was advised, and a second operation was immediately done; the growth was found to consist of broken down material and scattered through the adjacent fascia and deeper structures were numerous hard nodules; everything that appeared suspicious was removed and sent to the pathologist without any comments regarding the case or reference to the ray treatment; he reported that undoubtedly the tissues were carcinomatous, but they showed evidences of having undergone some peculiar change, which had stopped the cell growth. A similar observation regarding the power of X-ray over carcinomatous cells has recently been made by Mr. Stephen Mayou, an English physician. My pa-

tient is still under observation and treatment, and so far there are no signs of recurrence.

Considerable discussion is now going on regarding the beneficial effect of radio-therapy upon pelvic and abdominal malignant neoplasms; some claim that the growth of these tumors is stopped, and many times thus disappear altogether.

While on this subject it is well to notice that the X-ray is capable of and does cause absorption, and conservative men have suggested that the use of a powerful ray might produce metastasis of the malignant process; this is a reasonable surmise, and before we advise or use radio-therapy in deep-seated or inoperable malignant disease the case should be thoroughly understood, and all evidences carefully weighed, then if the results are grave we can feel assured that our patient has received the best that medical science can offer, even to the last resort, and the stigma of quackery is removed from a method that is of undoubted value.

Very few authoritative reports are obtainable regarding radio-therapy in the treatment of sarcoma, but from recent observations by Coley it appears that the ray has an inhibitory effect upon this form of cancer.

All agree that it lessens, and many times absolutely relieves pain, this alone would be sufficient to warrant the continuance of this procedure in sarcoma.

I have used the ray in two cases, one of the jaw and the other of the glands of the neck, but neither derived any benefit except relief from pain.

Radio-therapy has been recommended for the relief of hypertrichosis. It will remove the hairs, but the treatment must be persisted in for at least two months, with daily exposures of five minutes each. At the end of that time the hairs will have fallen, but after a few weeks of rest many have returned; so to make a permanent cure it is necessary to continue the treatment for a month or two longer.

It is also used to reduce hypertrophic scars and keloids. I have at present a case of keloid under treatment, in which the hypertrophy is rapidly growing smaller.

Zeisler and Pusey, of Chicago, have reported excellent results in the treatment of acne by the X-ray, but it seems from our present knowledge that this method is scarcely warranted, except, perhaps, in the chronic indurated variety, for we have simpler and better known curative measures.

The results of radio-therapy in psoriasis are still under observation. At the last meeting of the New York Dermatological Society Dr. Allen presented a case of psoriasis which had resisted all of the older methods of treatment. As a control, one-half of the body was exposed to the X-ray and the other was treated with chrysarobin ointment. The part that had been rayed was nearly well; the other side was only slightly influenced by treatment.

In the treatment of eczema it would appear to be particularly applicable to the old indurated variety.

Before concluding it may be well to state that it is undoubtedly true that medical electricity in any form is a happy hunting ground for all sorts of empiricism. Finsen light and X-rays have received their due attention from the ubiquitous quacks.

Many of the cases reported by men of undoubted integrity appear miraculous, and it is not surprising that the temperate, accurate physician is led to doubt the authenticity of many of the published observations.

The primary requisite of all scientific report is entire truthfulness. Negative evidence is of as much value as positive. In our eagerness to use this new weapon against disease let us beware of over enthusiasm.

CONCLUSIONS.

1. It has been proven from time immemorial that the sun is a potent hygienic agent, and as medical science advances it is more and more evident that light and air are the great necessities of animal well-being.

2. That the various fads and theories regarding light were the stepping stones to the more perfected methods and understanding of the therapeutic principles of light.

3. That in electric light we have a most valuable therapeutic agent in the amelioration and cure of many chronic and troublesome diseases.

4. That photo-therapy, the Finsen method, is of undoubted value, although limited in its usefulness.

5. Radio-therapy is more useful than photo-therapy because of its wide and easy range of application. Its therapeutic power is so decided that it will continue to be a valuable aid in the treatment of many diseases.

6. This method is capable of producing untoward and grave symptoms. Although it is not necessary to produce an X-ray dermatitis for the cure of diseases, yet this accident may occur.

Each operator must be a guide unto himself, and no one should attempt to use the ray unless he is fully acquainted with all its possibilities and dangers.

7. That it is better in lupus than the Finsen method because of its simplicity.

8. That in radio-therapy we have a valuable weapon against all forms of cancer; but surgical procedure is preferable if the cancer is small and easy of access.

9. Personal experience and a careful review of the reliable literature on this subject prove that radio-therapy has an inhibitory effect on all malignant growths and that it should be used in inoperable cancer and after removal by surgical means.

Azzurrini (*Lo Speriment.*, An. 56, f. 5, 6) discusses the changes met with in the spleen in the common hepatic cirrhosis of drunkards. It has long been known that the spleen is enlarged in these cases. It is also known that in Banti's disease there is enlarged spleen with hepatic cirrhosis, but the changes in the spleen are not the same. In the ordinary hepatic cirrhosis the splenic changes are localized chiefly in the splenic pulp, and consist in a dilatation of the veins and lacunar spaces, whilst the follicles are altered secondarily by a dilatation of their capillaries. The reticulum, unless the disease is of long duration, is not increased. In Banti's diseases the alterations are primarily and chiefly localized in the Malpighian corpuscles, whilst the dilatation of the veins either fails entirely or is very little marked. The reticulum, on the other hand, is distinctly enlarged. The author's conclusions are derived from a study of twenty cases of ordinary hepatic cirrhosis—three early, fourteen moderately severe, and three very severe. Broadly speaking, the changes seen in the spleen correspond to those which are seen in cases of stasis, and are as follows: (1) Dilatation of the veins and cavernous tissue of the splenic pulp, due to accumulation of red corpuscles; (2) dilatation of the capillaries of the Malpighian follicles, proceeding from the periphery to the central artery, escape of blood, and disassociation of the cellular elements constituting the follicle; (3) thickening of the capsule, trabeculae, and adventitious sheaths of the veins; (4) destruction of the red corpuscles above the normal; (5) degenerative changes in cellular elements of the splenic pulp, ending in granular breaking up of the same. (*British Med. Jour.*, Feb. 14, 1903.)

PERSONAL OBSERVATIONS ON THE REMOTE RESULTS OF CONSERVATIVE SURGERY ON THE PELVIC ADNEXA.

BY JOHN O. POLAK, M.S., M.D.,

Assistant Professor of Obstetrics and Gynecology, Long Island College Hospital; Surgeon to the Williamsburgh and Deaconess Hospitals, Etc.

Read before the Brooklyn Gynecological Society, Feb, 6, 1903.

In looking over the records of my last two hundred and fifty abdominal operations, I have been impressed by the large percentage of so-called conservative procedures, which have been practiced, and chagrined to note the number of patients who have not been cured symptomatically, when anatomical cures are recorded at the date of their dismissal. I take occasion to present these observations, in the hope that the indications and limitations for conservative work upon the adnexa may be more clearly defined. One can seldom look back over a series of cases operated upon, without being impressed by his sins of omission, and ask himself why such is the result if the indicated work has been properly done.

I have selected for special consideration from this series, one hundred and sixty-one cases, in which conservative operations have been made on the adnexa, of which the following is a brief analysis.

In 94 patients the tubes were found to be normal, except for visceral adhesions; these were freed, and the tubes left undisturbed.

One tube was resected in thirty-six cases; while the distal portion of both tubes was amputated on thirty-one occasions. All of my tubal resections have been confined to tubes that were either the seat of a hydrosalpinx, or of numerous sacculations or of chronic hyperplasia of the distal end. No resection of a pus tube is included in this report.

In 75 women one ovary was removed; in 63 cases one ovary was removed, and the other, to a greater or less extent, resected. These ovaries contained simple cysts, or were generally cystic, or contained a hematoma or an abscess. Those of the last class were treated by ablation. Simple cysts of both ovaries were resected in 23 instances, and one or both ovaries were anchored in a higher pelvic plane in 22 of the operations cited.

Twelve fibroids were removed by myomectomy in the course of these operations. The tumors

varied in size from that of a walnut to that of a small cocoanut.

There was no primary operative mortality in this series. It must be understood, however, that these operations were not consecutive. Curettage, trachelorrhaphy and perineorrhaphy were done on many of these patients prior to opening the abdomen; and suspension of the uterus or intra-abdominal shortening of the round ligaments for the correction of retrodisplacements of the uterus was made in the course of 123 of these operations. I have been able to follow twenty women to pregnancy and one has had three children with but a fraction of one ovary. Nine have been confined by the writer at full term. Certainly such a showing justifies conservatism. But, unfortunately, child-bearing is not a woman's only function or desire; most women are operated upon for the relief of pain, menstrual or intermenstrual. Have my results accomplished THIS to the satisfaction of the surgeon and patient? This must be replied to in the negative; for twenty-one women have been re-operated upon by me for post-operative pain in the old site or in a new location, and I am sure that many others have been re-operated by other surgeons.

From the foregoing statistics and from a careful review of the histories of these patients, which are presented in a confessionary spirit, the writer has made the following deductions as to the causes of his failures.

1. In my early experience many failures may be attributed to an insufficient appreciation of the exact pathology of the adnexa, with consequent errors in judgment.

2. Because of my failure to recognize the presence of remote and coincident lesions causing referred pain, as pathological conditions of the kidney, appendix, gall bladder, sigmoid and rectum.

3. To an imperfect toilet of the peritoneum resulting in the formation of adhesions and their sequelæ.

4. To an improper and irrational use of drainage in pus cases. And finally because in many cases sufficient time was not given to the pre-operative preparation of the patient.

Recognizing the foregoing as some of the causes of failure in this series I will attempt to define the limits of conservative surgery on the adnexa, and ask your criticism.

In single and young married women suffering from ovarian dysmenorrhea every effort should be made by the surgeon to preserve as much healthy and functioning ovarian tissue as is pos-

sible without sacrificing the object of his operation, *i.e.*, the relief of pain. When the ovary is the seat of a single cyst of moderate size or of several small cysts or of a single hematoma it is amenable to successful resection. On the other hand when there is multiple cystic degeneration, particularly if these cyst formations are found near the hilum or when there are two or more hematomata within the ovary, oöphorectomy should be the procedure of choice. Suppurative disease within the pelvis is antagonistic to successful ovarian resection, as the ovary seems to be unable to withstand infection when its tunic is broken. This is particularly evidenced in the resection of small ovarian abscesses. The writer has had two failures by disregarding the truth of this observation, and Dunning in his excellent article also refers to this point.

Another point which contributes largely to the success of conservative ovarian surgery is the maintenance of the ovary in a plane of circulatory equilibrium: For an ovary which is out its normal plane has its blood balance disturbed and will swell, increase in weight and become prolapsed, thus defeating the object of the operation. It is the writer's custom to anchor resected ovaries to the posterior surface of the broad ligament. This method of procedure is applicable to normal, displaced ovaries which otherwise would become adherent in a low plane and cause trouble. When no resection of either tube or ovary has been made, simple shortening of the infundibulopelvic ligament will suffice to raise the ovary to the proper height in the pelvis. Only four patients on whom resection had been done have returned for subsequent operations upon the resected ovary. Tubal lesions present a more complex problem for the surgeon than ovarian degenerations and inflammations; the gross appearance of a tube is often misleading, and gives but little information as to its actual pathology. The writer has many times left tubes, even when the history of pre-menstrual pain has been prominent while the tubes were NON-adherent and patent, only to be called upon later to remove them, and on microscopic examination to find a chronic hyperplasia and chronic catarrhal salpingitis. A salpingectomy has cured such patients. From my experience in this series I would say that a tube that is sacculated, thickened, adherent, impatent or the seat of a chronic suppuration, no matter whether such suppurative process be of gonorrheal or septic origin, demands ablation rather than resection. The field of tubal resection is limited, the teachings of Dudley and Harris

notwithstanding, to non-inflammatory anomalies of the distal end, as patent sacculations, blood and serous accumulations, when the proximal end is healthy and pervious. In addition to the above limitations the writer feels justified in advocating early incision and drainage of acute pus accumulations (not gonorrheal) within the tube by vaginal incision, delivery of the tube into the vagina, and splitting up its free surface for a distance of one to one and a half inches.

A healthy mucous membrane has been regenerated in a sufficient number of instances to encourage him to continue such conservatism.

When a tube has been resected, the newly made ostium abdominalis should be attached to the ovary, so as to form an adhesion which acts as a tubo-ovarian ligament. After resecting the ovary and tube in the manner suggested the writer commonly suspends the uterus, and in this way raises the ovary to a higher pelvic plane. Of course, when a retrodisplacement complicates the condition, suspension or intra-abdominal shortening of the round ligaments is always made—the uterus is raised to a higher level by the former operation.

The second cause of my failures has been my inability or failure to recognize lesions causing referred pain. Movable kidney and appendiceal lesions have been the most constant causes of referred pain in this series.

Eleven of the twenty-one cases re-operated by me for pain continuing after operation have had appendicular disease and six have been relieved of all pain by a subsequent nephorrhaphy. I have become so much impressed with the importance of coincident lesions producing referred pain that I not only examine these patients for every possible abdominal lesion, before operation, but when the abdomen is opened, the appendix, gall-bladder and kidneys are inspected or palpated by the hand within the abdomen. When the appendix is adherent, constricted, clubtipped, sacculated, thickened or contains concretions it is removed. Its removal should also be the rule in cases of right oöphorectomy.

Over twenty per cent. of gynecological patients have kidneys which are more or less movable, this migration of the kidney is, however, generally associated with gastropnoxis or enteropnoxis, and this, I believe, to be the explanation of many successful nephorrhaphies failing to relieve the original symptoms. A suitable abdominal binder should be tried prior to advising operation. Backache and one-sided pain should be interrogated for with a view to determining a renal origin.

The gall bladder has, in one instance, produced symptoms simulating right adnexal disease, but unfortunately for the woman there was a slight tubal condition which masked the location of the true lesion, and the patient was subjected to a second celiotomy. Catarrhal proctitis, sigmoiditis and prolapse of the sigmoid are often coincident with uterine and ovarian displacements, occasioning backache, inguinal pain and a bearing down sensation in the pelvis and must be excluded before advising operation.

An imperfect toilet of the peritoneum produces adhesions; these inhibit the functions and mobility of the pelvic viscera and cause pain. Their avoidance is desirable, and to accomplish this end, we attempt to cover in all raw surfaces with peritoneum to minimize the amount of traumatism to the viscera by not handling the gut or by packing off the pelvis with coarse gauze pads. An exaggerated Trendelenbergh posture, maintained while the patient is going under ether, will empty the pelvis of intestines when the peritoneum is opened, and these may be held back with Turck's warm water bags or a sterile piece of rubber dam, without producing serious damage to the endothelial covering. Before closing the abdomen all blood clots are removed, shreds of tissue trimmed away, and the omentum pulled down over the intestines. It is the writer's custom to leave one or two quarts of normal salt solution in the peritoneal sac on closing it, to float the intestines and then to raise the foot of the bed some eighteen inches for the first twenty-four hours. The bowels are in this way floated out of the pelvis and the tendency to adhesion is lessened. The writer also secures immediate post-operative peristalsis by having two ounces of a saturated solution of magnesium sulphate given just as the patient begins her anesthesia, and finally the patient is turned from side to side during the first days. The omentum is not only a great isolater, but also a great mischief maker, when it has sustained any amount of traumatism; several sad experiences have taught us that bruised or torn omentum must be amputated by individual vessel ligation, mass ligatures tending to cause dangerous omental adhesions.

Improper and irrational drainage in pus cases often prevents an aseptic and afebrile convalescence and has been the cause of several of my post-operative failures. Drainage is unnecessary in the majority of pus cases and is an admission on the part of the surgeon of incomplete work. The pus of a pyosalpinx or a tubo-ovarian abscess is commonly sterile and may be mopped up with

sponges and the soiled surfaces cleansed with 50 per cent. peroxide of hydrogen, which is then washed away with normal salt solution and the peritoneal sac closed without a drain. So satisfactory has this method been in the hands of the writer for managing pus unintentionally spilled in the course of an operation, that the abdomen has been drained but three times in forty-one consecutive pus cases, and but one patient has died in this number; and odd as it may seem this patient was one in whom drainage was used.

Persistent oozing from torn surfaces which it is impossible to cover in with peritoneum and pus leakage from puerperal lesions or bowel injuries within the pelvis or in the region of the cecum, which, because of their situation, or the gangrenous condition of the surrounding gut make satisfactory suture of the injury questionable, demand drainage. Washed iodoform gauze cut in strips one and a half or two inches wide may be used for packing off raw surfaces, wicks of sterile gauze folded in rubber tissue serve all other indications for drainage. Vaginal drainage should be elected in all pelvic cases, and the so-called Fowler's position augments its efficiency. It is a mistake to take out a drain in twenty-four or forty-eight hours. It may be loosened but not removed. By leaving the gauze or wick in place for three or four days the site drained is thoroughly isolated, and when the drain is removed intra-abdominal pressure keeps the tract empty and no reintroduction of packing is necessary.

Few operators give sufficient time to the pre-operative preparation of their patient, and, consequently, convalescence is complicated without reason. Rest in bed for from forty-eight hours to a week should precede elective abdominal work and during this time the intestinal tract, heart, skin and kidneys should be carefully prepared for the operation. Attention to such details makes abdominal work easy, as compared to like work in an unprepared patient. In addition to the cases already cited, seventeen women, on whom conservative work has been done, included in this series, have replied to my inquiry as to their present condition. Eleven are free from all pain, menstrual or intermenstrual, and six are improved, having no intermenstrual pain, but suffering to a slight degree at each period. Only two women have had the courage or the inclination to state that their condition is worse than when operated. Out of the one hundred and sixty-one women which were selected for the text of this paper the final results in sixty have been presented.

GONORRHEA IN WOMEN.

Read before the Long Island Medical Society.

BY AUGUSTUS A. HUSSEY, M.D.

Adjunct Obstetrician to the Brooklyn Hospital.

Gonorrhea in women is a disease of common occurrence. Noeggerath's estimate that 80 per cent. of married women are at some time infected represents the extreme of pessimism. The deduction drawn by Saenger after the examination of 1900 patients is more conservative and probably is not far from the truth. He estimates that one in every eight of the women who consult the gynecologist has gonorrhea in some form.

The disease is caused by the gonococcus of Neisser. It occurs in two forms, the acute and the chronic. The acute form is caused by gonococci from a fresh infection or from an acute exacerbation of an old infection. The chronic or latent form is caused by gonococci from an inflammation of long standing and occurs frequently in young married women. It also follows the acute form.

The parts most frequently involved are the urethra, the cervix uteri, the corpus uteri, the fallopian tubes and the vulvo vaginal glands, in the order named.

Urethritis probably occurs in all acute cases. It is a mild inflammation, runs a short course, and tends to spontaneous recovery. As a rule it attracts little attention. This is unfortunate for two reasons:

1st. It is usually the original site of infection and may at first be the only one. In these cases if they are seen early enough the infection may be limited to the urethra.

2nd. There are many small glands about the mouth of the urethra that harbor the gonococci long after the urethritis has disappeared and serve as sources of infection of the male and re-infection of other parts of the female genital tract.

The most important of these glands are Skene's tubules and the periurethral glands.

Skene's tubules are two small tubular glands lying side by side in the floor of the urethra and emptying just inside the meatus. They are $\frac{3}{8}$ to $\frac{1}{4}$ of an inch long and admit a small probe. They divide at the upper end into a number of branches. They are lined with columnar epithelium.

The *periurethral glands* are a group, four or

five in number, lying about the urethra and opening outside the meatus.

Vulvitis is usually secondary to urethritis or cervicitis. It is frequently complicated by inflammation of Bartholins' glands.

These are two compound racemose glands lying, one on either side of the introitus, beneath the posterior third of the labia majora. They empty by two slender ducts just outside the hymen, about an inch from the median line behind. They are lined with columnar epithelium.

During sexual excitement they secrete actively, and the secretion, when infected with gonococci, is an important factor in the transmission of the disease to the male, and to other parts of the female genital track.

Vaginitis, as a primary inflammation, occurs in children and in pregnant women. It occurs secondarily to cervicitis and vulvitis.

The cervix is infected in 35 per cent. to 50 per cent. of the cases. In about 38 per cent. of these the infection spreads to the uterus, and in 10 per cent. of the latter to the adnexa.

The pathological changes caused by the gonococci are similar to those produced in other mucous membranes.

Symptomatology.—The acute form usually begins with a urethritis. The local symptoms appear two to five days after infection. They may be preceded or accompanied by chilliness, fever and a slight feeling of malaise. The patient is conscious of a tickling or burning sensation in the urethra on urination. Soon a discharge appears, which may or may not attract the patient's attention. If the inflammation is severe and the upper end of the canal is involved the symptoms may resemble those of acute posterior urethritis in the male. Frequently the urethral symptoms are so slight that they pass unnoticed.

When the vulva become infected the patient's discomfort increases. Urination causes severe burning pain. Movements of the legs increase the distress. There is an abundant discharge of pus.

The cervix may be infected at the same time as the urethra or it may be infected later from the urethral secretions. It may give no symptoms beyond a slight discharge. Inflammation of the vagina causes a burning pain in the genitals, backache and a feeling of weight in the pelvis. The secretion is profuse. It runs over the perineum and may set up a vulvitis or eczema of the groin and thighs.

Invasion of the body of the uterus is marked by a chill and fever. The temperature runs from

100° to 102°F. There are severe pains in the back and lower abdomen, and bearing down sensations in the bladder and rectum. The patient feels sick and usually takes to her bed.

Examination of a patient with a well-marked attack of gonorrhea shows the vulva edematous and covered with pus. The mucous membrane is red, swollen and eroded. Inflamed glands appear as dark red spots or elevations. The meatus is pouting, red, and distorted by the swelling of Skene's tubules or the periurethral follicles. Pressure on the urethra shows it to be infiltrated and tender.

The vaginal examination reveals a red and swollen cervix, with a patulous and eroded os. The cervical follicles are enlarged. The upper part of the vagina may appear normal, or it may be slightly reddened, or intensely red, granular and eroded. The fornices may be covered with soft villous growths.

When the uterus is involved the bimanual examination shows the organ larger than normal, tender, perhaps displaced, with its range of motion diminished. There may be considerable exudate in the pelvis.

A mild infection may show only a slight redness about the meatus and introitus, some edema of the cervix with erosions about the os and a moderate amount of discharge.

Acute gonorrhea runs its course in three to six weeks. The inflammation reaches its height in 10 to 14 days. It may then subside and the parts return to their normal condition; or the inflammation may spread to the uterus, tubes, ovaries and pelvic peritoneum; rarely, from the urethra to the bladder, ureters and kidneys; more commonly the disease passes into the chronic stage.

Latent Gonorrhea.—Gonorrhea may begin as a chronic inflammation. This form is common in young married women. A characteristic history is as follows: Soon after marriage the patient notices an increase in the secretions, especially around the menstrual period. She may be annoyed by burning or itching of the vulva. Soon a dull pain makes its appearance in the back and pelvis after exercise. Menstruation becomes painful. Pregnancy may occur and abortion follow. If the pregnancy continue the puerperium is likely to be complicated by metritis-salpingitis, or peritonitis. After this the symptoms increase in severity. The menstrual type changes. The patient is confined to bed a part of every month. The general health suffers, and after a while the nervous system shows the strain and neurasthenia develops with its distressing train of symptoms.

Fortunately, many cases of chronic gonorrhea do not run this course. The infection may remain localized for years in the external genitals and present no subjective symptoms. The gonococci may disappear from the secretions and the disease remain quiescent. There is a tendency, however, for the inflammation to light up around the menstrual period, and the gonococci then reappear in the secretions.

The signs of chronic gonorrhea are found most frequently in the urethra in the vulvo-vaginal gland, and in the cervix. Pressure on the urethra from above downward will bring out a drop of thin, milky fluid. There may be nodules about the meatus, showing the presence of inflamed glands. Skene's tubules are usually swollen and thickened, and pressure will cause a drop of pus to exude from their reddened orifices. Inflammation of the glands may be chronic and manifest its presence only by a slight discharge, or it may be acute and one gland after another suppurates. The abscesses may open into the urethra and leave fistulous tracks.

The endoscope will reveal a diffuse redness of the mucous membrane, or circumscribed patches of deep red color, near the ends of the canal. Small yellow ulcers may be seen around the mouths of the follicles. In old cases there may be patches of scar tissue. Stricture is occasionally found.

The mucous membrane of the vulva is pale. Small red spots like flea-bites mark the mouths of Bartholin's glands. Erosions and small ulcers are seen about the introitus. Condylomata may be present. Pressure on Bartholin's gland brings out a little discharge. The gland may be enlarged or it may be the seat of an abscess or cyst. The duct of the gland is inflamed in nearly all cases of long standing.

The cervix is larger than normal. The os is eroded and patulous, and filled with stringy secretion. The surface of the cervix may be studded with small cysts. The uterus is enlarged. Its range of motion is diminished. It may be displaced and adherent. The tubes and ovaries may show signs of chronic inflammation.

The diagnosis of acute gonorrhea is easy. The clinical picture is characteristic and the demonstration of the gonococci removes all doubt. A purulent inflammation of the urethra should always be regarded with suspicion.

The diagnosis of chronic gonorrhea is not so easy. There may be no sign save leucorrhea, and demonstration of the gonococci is often impossible. Sanger lays stress on the following points:

1st. Demonstration or history of gonorrhea in the male.

2nd. Ophthalmia neonatorum.

3rd. Inflammation of Bartholin's gland or duct, or a cyst of the gland.

The use of the endoscope will frequently reveal a chronic urethritis whose presence had not been suspected.

Gonococci may sometimes be demonstrated in the secretion of Skene's tubules, or Bartholin's glands, when they are not found elsewhere.

The *prognosis* should be guarded. Many women have gonorrhea without developing any serious pelvic trouble. But the tendency of the disease is to become latent with periods of exacerbation, when infection is liable to be carried to other parts of the genito-urinary tract. The seriousness of the disease is appreciated when we remember that it is one of the most frequent causes of suppuration in the pelvic organs, that about one-half the women infected are sterile and that many of them become chronic invalids.

Treatment.—As gonorrhea is a disease that often begins insidiously, and tends to run a chronic course and to invade structures beyond the reach of local treatment, it is apparent that the aim of the physician should be, first, to prevent infection, and second to limit the inflammation to the parts first involved. The difficulties in the way of attaining these results are obvious. To prevent infection we must cure gonorrhea in men. As we all know, this is not an easy task. The celebrated French specialist, Ricord, once said that he could think of no greater punishment than to be obliged to visit hell, and passing them in review, to listen to the reproaches of all the patients he had failed to permanently cure of gonorrhea.

There are probably few who have treated many cases of this disease who have not had their share of failures. The fault sometimes lies with the patient, sometimes with the physician. We cannot cure all the cases, but it will stimulate our efforts to remember that the physician who cures a man of his gonorrhea before marriage deserves more praise than the surgeon who successfully performs double salpingectomy on the wife of the man who was never cured.

To limit the inflammation to the parts first infected the cases must be seen early and treated intelligently and persistently, keeping in mind the tendency of the disease to become chronic in the cervix, Bartholin's glands and Skene's tubules.

The treatment of acute gonorrhea is chiefly local. General measures, such as rest, restricted

diet, copious drinks, and alkalies, are indicated. Sedatives may be necessary to control the pain. The local treatment depends on the lesions. A careful examination to ascertain what parts are involved is the first step. In making this examination care must be exercised not to carry the germs to parts not already infected. If the vagina and cervix are normal, nothing should be introduced into the vagina until the gonococci have disappeared from the urethral secretions.

In the acute stage of urethritis local treatment is not wise. Every effort should be made to prevent the germs from infecting the vulva and entering the vagina.

The best means to this end are frequent use of antiseptic washes and a pad to absorb the discharge. As soon as the acute stage has passed, local applications should be made. The injection of $\frac{1}{2}$ a dram of a 1- to 2-per-cent. solution of protargol every six hours is recommended by some authorities. Jullien claims good results with a solution of ichthyol in glycerine, 2 to 10 per cent. Kelly recommends a suppository of iodoform. As soon as the urethra will bear instrumentation an endoscope should be introduced and protargol or silver nitrate solution applied directly to the inflamed areas. If the periurethral glands and Skene's tubules suppurate they should be opened up and cauterized.

Vulvitis calls for soothing applications, antiseptic washes and hot sitz baths. A 1- to 2-per-cent. solution of protargol should be applied every four hours and a piece of gauze wet with it laid between the labia. The vaginal douche should not be used. When the acute symptoms subside the parts may be brushed every three days with a 1- to 5-per-cent. solution of nitrate of silver or 5-per-cent. solution of protargol. If Bartholin's gland and duct are infected, the secretions should be forced out by gentle pressure and a mild solution of silver nitrate injected through the duct by means of a fine canicular syringe. Abscess of the gland should be treated on general surgical principles. Cyst of the gland calls for removal. Too much importance can not be placed on the treatment of Bartholin's glands and Skene's tubules, as these structures frequently harbor the gonococci after they have disappeared elsewhere.

When the cervix is involved a Sims speculum should be introduced and the cervix and upper part of the vagina carefully cleansed and swabbed with a 5-per-cent. solution of protargol. A tampon wet with a 2-per-cent. solution of protargol, or with ichthyol and glycerine, in the pro-

portion of 1 to 10, should then be placed beneath the cervix. This may be repeated every other day. When the acute stage has passed the cervix should be dilated gradually and a solution of silver nitrate, 2 per cent. to 10 per cent., applied every three days. Chronic inflammations of the vagina and cervix are benefited by applications of nitrate of silver 5 per cent. to 10 per cent. Cysts of the cervix should be punctured. Curettage or partial amputation of the cervix may be necessary in order to eradicate the disease.

When the body of the uterus is involved it is not wise to interfere too vigorously. Absolute quiet, free catharsis, hot applications to the abdomen, hot vaginal douches, and hot saline irrigations of the colon meet the indications.

When the acute symptoms have subsided the cervix may be dilated and protargol applied to the uterus through a canula. If this causes colic it should be discontinued. When the inflammation has become chronic, curettage and the application of iodine or carbolic acid to the interior of the uterus are indicated. This procedure may have to be repeated several times at intervals of some months.

To recapitulate briefly:

1st. Gonorrhea is a frequent disease among married women.

2nd. Its effects are often disastrous to the individual, to the family, and to society.

3rd. It begins as an acute inflammation and soon becomes chronic, or it is chronic from the start.

4th. The acute inflammation if seen early and treated intelligently may be cured. The chronic form is often located in the external genitals for a time, and is amenable to treatment.

5th. When the inflammation has involved the tubes and ovaries the normal condition of the parts is rarely restored.

6th. The treatment of gonorrhea is made difficult by the fact that the patient does not apply for treatment at the beginning of the disease. This is due, in the acute cases, to her ignorance of the meaning of the symptoms, and in the chronic cases, to lack of significant symptoms.

7th. The best treatment is prophylactic.

8th. Treatment of the disease, to be effective, must be commenced early. This can be accomplished only by teaching women that urethritis and leucorrhea are often the precursors of a chronic disease that may undermine their health, cripple their reproductive organs, and not infrequently cause death.

A Hamilton (*The Jour. Amer. Med. Ass.*, Feb. 28, 1903) publishes a paper, *The Fly as a Carrier of Typhoid*, which is an inquiry into the part played by the common house fly in the recent epidemic of typhoid fever in Chicago. She summarizes as follows:

1. The epidemic of typhoid fever in Chicago during July, August, September and October, of 1902, was most severe in the Nineteenth Ward, which, with one-thirty-sixth of the city's population, had over one-seventh of all the deaths from this disease.

2. The concentration of the epidemic in this locality cannot be explained by contamination of the drinking water, or of food, or on the ground of ignorance and poverty of the inhabitants, for the Nineteenth Ward does not differ in these respects from several other parts of the city.

3. An investigation of the sanitary conditions of this region shows that many of the street sewers are too small, and that only 48 per cent. of the houses have sanitary plumbing. Of the remaining 52 per cent. 7 per cent. have defective plumbing, 22 per cent. water-closets with intermittent water supply, 11 per cent. have privies connected with the sewer but without water supply, and 12 per cent. have privies with no sewer connection.

4. The streets in which the sanitary arrangements are worst had the largest number of cases of typhoid fever during this epidemic, irrespective of the poverty of the inhabitants.

5. Flies caught in two undrained privies, on the fences of two yards, on the walls of two houses, and in the room of a typhoid patient were used to inoculate eighteen tubes, and from five of these tubes the typhoid bacillus was isolated.

6. When the discharges from typhoid patients are left exposed in privies or yards, flies may be an important agent in the dissemination of the typhoid infection.

Cobb (*The Journal Amer. Med. Ass.*, February 28, 1903) emphasizes the fact that it is necessary to have lamps of much greater candle power than those usually sold. Secondly, that it is rare to find the accessory sinuses dark on transillumination during the early stages of acute coryza. Thirdly, that during the later stages it is the usual result to find one or more of them dark. Fourthly, that hemicrania is often closely associated with antrum disease. Fifthly, that it is almost the rule to find one or more of the nasal accessory sinuses involved when the ears are affected during acute coryza.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, February 17, 1903.

The President, CHARLES N. COX, M.D., in the Chair.

There were about 100 members present.

The meeting was called to order and the minutes of the previous meeting read and approved.

REPORT OF COUNCIL.

The following candidates for membership were reported as having been accepted by the Council:

R. C. Holcomb, L. I. C. H., 1896.
F. B. Cross, P. & S., 1900.
Jas. Ellard, Bellevue, 1892.
Jno. J. Fitzgerald, Albany Med. Coll., 1886.
Wm. Schroeder, Jr., L. I. C. H., 1901.
C. L. Harrison, P. & S., 1887.
P. M. Pilcher, P. & S., 1900.
Peter Hughes, N. Y. Univ., 1879.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the Council were declared, by the President, elected to active membership:

Philip W. T. Moxam, Harvard, 1901.
Albert W. Griffiths, Harvard, 1901.
Edward E. Wilson, P. & S., 1900.
Henry Franciscus, L. I. C. H., 1888.
Dewitt S. Parker, L. I. C. H., 1892.

APPLICATIONS FOR MEMBERSHIP.

Applications for membership have been received from the following:

Dr. Harris Moak, Albany Medical College, 1899, 153 Underhill Ave. Proposed by H. A. Fairbairn; seconded by Wm. S. Hubbard.

Dr. Edward Dawson, Albany Medical College, 1902, 820 Lafayette Ave. Proposed by S. H. Mac Gillvary; seconded by O. A. Gordon.

Dr. George P. Thomas, Univ. Penn., 1901, 748 Jefferson Ave. Proposed by J. P. Warbasse; seconded by H. H. Atkinson.

Dr. Albert T. Birdsall, Univ. of Minn., 1896, 285 Washington Ave. Proposed by W. E. Butler; seconded by W. S. Hubbard.

Dr. Eugene W. Skelton, L. I. C. H., 1901, 296 Union St. Proposed by B. A. Fedde; seconded by W. S. Hubbard.

Dr. J. J. Colgan, L. I. C. H., 1882, 191 Nassau St. Proposed by Wm. F. Campbell; seconded by J. M. Van Cott, Jr.

The Secretary read a communication from the Brooklyn Gynecological Society, making a donation of \$100 to the Kings County Society.

Dr. Fairbairn moved that a vote of thanks be tendered to the Brooklyn Gynecological Society for their generous gift. Seconded and carried.

The President announced the death of the following active members, or who had at one time been active members, during the past month:

Joseph Edwin Clark, M.D., Coll. P. & S., 1849, member from 1862 to 1903, died January, 1903.

Jno. Frank Valentine, M.D., Coll. P. & S., 8179, member from 1879 to 1883, died February 5, 1903.

Eugene Earle Woolworth, M.D., Univ. City of N. Y., 1897, member from 1897 to 1903, died February 5, 1903.

Thomas Naegle DeBowes, M.D., Univ. City of N. Y., 1858, member from 1868 to 1887, died February 7, 1903.

Jno. Jay Conway, M.D., L. I. C. H., 1880, member from 1901 to 1903, died February 13, 1903.

SCIENTIFIC PROGRAM.

1. A Brief History of the Therapy of Various Forms of Light. By James MacFarlane Winfield, M.D. Discussed by Dr. Philip M. Jones, San Francisco (formerly a member of this Society).

2. Concerning the Etiology of Typhoid Fever. By Alexander Rae, M.D. Discussed by Drs. West, Fairbairn, Wilson and Van Cott. Closed by Dr. Rae.

Discussion.

DR. PHILIP M. JONES: For reasons that are indicated in Dr. Winfield's paper I am particularly interested in this subject. My interest in the application of the X-rays to therapeutic measures was originally purely theoretical. It started from a very heated discussion that I entered into in an attempt to explain the cause of X-ray dermatitis. This discussion was carried on principally in the electrical and physical journals. There were a few papers published in the medical journals. The result of that discussion was there was no question whatever in the minds of physicists, though I believe there is in the minds of some

medical men, as to the cause of X-ray dermatitis. It is practicable to eliminate all questions of electrical action, of heat action or conditions of that sort, and you narrow the whole investigation down to the question where the action becomes one of absorption of radiant energy. Having established that point we reach the domain of a very wide field.

The action of radiant energy in chemistry is exceedingly interesting, but very complex. Its characteristic form is in the explosion of high explosives. If, for instance, you hit a cap of fulminating mercury with a hammer, you have a chemical change the result of energy. The molecule in the fulminate is highly complex, composed of a very great many atoms. When it is destroyed the resulting gases take up a wonderfully increased volume, and the definition of the result is an explosion.

If we consider the next step we come to the action of light on the photographic plate. Here the action is composed of molecules highly complex in their structure, a large number of atoms that are unstable and easily affected. When the light or any other form of radiant energy that is supplied strikes the emulsion on the plate, we have the same result that may be produced not only by light, but by pressure or electrical discharge. In using a kodak if you twist the roll quickly on a hot day, you frequently find that your film is vague, that there are radiant lines all over the film. It is simply a question of energy in some shape or another being expended on unstable molecules and rearranging the atoms and producing a chemical change. This is exactly what takes place in an X-ray dermatitis.

The X-rays are nothing but radiant energy. They are exactly of the same sort as heat rays or ultra violet rays or light rays, but they vary in their physical characteristics. If we consider the spectrum, for instance take that portion which includes the ultra violet and light rays; we may arbitrarily say it represents $\frac{1}{2}$ inch in extent. Then if we skip a blank space of four or five inches, we come to the rays that are known as X-rays; the intermediate rays are undetermined. The longest gap between the X-ray and the rays of the spectrum would represent a reading of four or five inches. The X-rays that we can determine would represent a space of six or seven inches. In other words, we can determine X-rays of very great difference in their wave length, that are produced from an excessive vacuum tube, and they correspond to the facts laid down to determine the presence or absence of X-rays.

The shortest X-rays have the greatest penetrability; those of the longest wave are more readily absorbed. When you come to the ultra violet rays, they will less readily absorb and will pass through certain structures with comparative ease. Ultra violet rays will pass through films of hard rubber.

The use of these rays of great variety of wave length in medicine is, therefore, exceedingly interesting. I believe firmly that we are just barely scratching the surface. The case that Dr. Winfield referred to as having been reported in 1897 was one I presented to the California Academy of Medicine. The patient was a woman of 60 years, who had the entire right side of her face one large open sore of lupus, commencing to involve the lower eyelid and involving more than half the right ear. I took this patient to the meeting, and had her looked over carefully, and told them that I thought theoretically the X-rays should have some effect on these tissues, because the lupus cells are of a decidedly higher organism than the cells in the normal healthy skin tissue. We find that the molecules in the pathological cell are more highly organized than the molecules in the normal cell. The theory on which I based my treatment was, that if this was the case, and if the action in the skin and tissues were similar to the action in the photographic emulsion, then there should be a decided result.

The treatment was commenced and lasted several weeks, at the end of which time almost the entire surface had been healed over with fairly good healthy skin. The ear remained still inflamed and swollen. While I was treating the case I was called away from the city, and had to turn the patient over to some one else, but the treatment was continued with a perfectly satisfactory result. That was sufficient evidence to me that the theory was correct. The theory from a purely physical standpoint is unquestionably correct. At the present time there is no electrician acquainted with the subject that disputes the action of the X-rays in producing this X-ray dermatitis as being similar to the change in the photographic plate.

The further development of this matter of treatment is going to be exceedingly interesting. The variation in wave length is due to two factors: First, the degree of vacuum in the tube, and, second, the rate of interruption in the current through the tube. The conditions are precisely the same whether we use the coil or static machines. The variation in the rate of interruption of the current going through the tube can

be controlled by a number of physical devices. The question of vacuum is one not readily controlled, and it is an exceedingly vexing question. We can, however, use tubes of different vacuum for different sorts of experiments, and by taking the tube of a given vacuum and changing the rate of interruption, we can produce rays of very great difference in their wave length.

I believe firmly that careful research along these lines will prove that the absorption of the light rays by pathological cells in the deeper tissues is quite possible; in other words, that we will find these pathological cells will be in a certain way selected; that they will be affected by waves of different length, when other cells will not be affected in this way. Certainly it is perfectly possible to make X-ray examinations without producing X-ray dermatitis, if the proper tube is selected and used in the proper manner.

EXECUTIVE SESSION.

The President announced that Dr. J. E. Sheppard had received a plurality of votes by ballot for Vice President at the annual meeting, but he did not receive a majority of the votes cast, which, according to the Constitution and By-laws, is necessary to a choice, for the reason that there were four candidates for the office. The other three candidates have withdrawn, but to meet the technical requirements of the By-laws it is necessary that the election should be by ballot.

Dr. Golding moved that the Secretary be empowered to cast a ballot for Dr. Sheppard for Vice President. Seconded and carried.

Accordingly, the Secretary cast a ballot for Dr. Sheppard for Vice President, and he was declared duly elected.

Dr. Beers having requested that his name be withdrawn from the nomination for Directing Librarian, on motion duly carried, the Secretary was empowered to cast one ballot for Dr. Winfield. A ballot in accordance therewith was cast by the Secretary, and Dr. Winfield was declared Directing Librarian.

STANDING COMMITTEES APPOINTED FOR 1903 BY THE PRESIDENT, CHAS. N. COX, M.D.

The President announced the following standing committees for the ensuing year:

MEMBERSHIP.

F. D. Bailey, Chairman; W. F. Koerner, Vincent Barber, A. H. Brundage, P. C. Jameson,

Edw. C. Bennett, E. H. Mayal, H. W. Lincoln, Jno. Rankin, H. L. Schelling, L. E. Treste.

DIRECTORY FOR NURSES.

R. W. Westbrook, Chairman; S. H. Lutz, E. P. Hickok.

ENTERTAINMENT AND RECEPTION.

N. T. Beers, Jr., Chairman; W. S. Shattuck, W. H. Rankin.

HISTORICAL.

J. P. Warbasse, Chairman; Wm. Schroeder, David Myerle.

LEGISLATION.

Wm. F. Campbell, Chairman; C. B. Bacon, M. T. Lewis.

PUBLIC HEALTH.

E. H. Bartley, Chairman; E. H. Wilson, Z. T. Emery.

MILK COMMISSION.

E. H. Bartley, Chairman; E. H. Wilson, Z. T. Emery, W. A. DeLong, Victor A. Robertson, Eliza M. Mosher.

WM. S. HUBBARD, Secretary.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, March 17, 1903.

The President, CHARLES N. COX, M.D., in the Chair.

There were about 150 members present.

The meeting was called to order, and the minutes of the previous meeting read and approved.

REPORT OF COUNCIL.

The Council reported favorably upon the following candidates for membership:

J. T. Colgan, L. I. C. H., 1882.

A. T. Birdsall, Univ. of Minn., 1896.

Edw. A. Dawson, Albany Med. Coll., 1902.
 G. P. Thomas, Univ. of Penn., 1901.
 J. A. Quell, P. & S., 1902.
 E. W. Skelton, L. I. C. H., 1901.
 P. Harris Moak, Albany Med. Coll., 1901.

APPLICATIONS FOR MEMBERSHIP.

Applications for membership were received from the following:

E. C. Brennand, 144 Pierrepont St., P. & S., 1895. Proposed by R. S. Fowler; seconded by J. E. Jennings.

G. W. Vandegrift, 38 Lee Ave., P. & S., 1901. Proposed by W. G. Reynolds; seconded by H. G. Webster.

John J. Wagner, Sixth Ave. and Third St., Jefferson, 1897. Proposed by C. B. Bacon; seconded by Wm. S. Hubbard.

A. W. Sully, 409 Clermont Ave. Proposed by F. J. Shoop; seconded by Wm. S. Hubbard.

Adolph Frederick Konther, 260 South First St., L. I. C. H., 1902. Proposed by J. H. Raymond; seconded by Wm. S. Hubbard.

Peter Augustus Keil, 170 Barbey St., L. I. C. H., 1902. Proposed by Jos. H. Raymond; seconded by Wm. S. Hubbard.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the Council, were declared, by the President, elected to active membership at the meeting:

F. B. Cross, P. & S., 1900.
 James Ellard, Bellevue, 1892.
 John J. Fitzgerald, Albany, 1886.
 Wm. Schroeder, Jr., L. I. C. H., 1901.
 C. L. Harrison, P. & S., 1887.
 P. M. Pilcher, P. & S., 1900.
 Peter Hughes, N. Y. Univ., 1879.

CORRESPONDING MEMBERSHIP.

R. C. Holcomb, Naval Hospital, Newport, R. I.

SCIENTIFIC PROGRAM.

1. Paper: Illuminating Gas Poisoning. By Dr. Paul M. Pilcher. Discussed by Drs. Bartley and Hutchinson. Closed by Dr. Pilcher.

2. Paper: The Medical Witness. By Dr. Arthur C. Brush. Discussed by Judge Wm. B. Hurd, Jr., Drs. Browning, Baker and Bristow. Closed by Dr. Brush.

EXECUTIVE SESSION.

Dr. J. E. Sheppard moved that a vote of thanks be tendered to Judge Hurd for his kindness in coming to the meeting to discuss Dr. Brush's paper. Unanimously carried.

Dr. Wm. Schroeder presented to the Society a portrait of Dr. Geo. Marvin, President of the Kings County Medical Society in 1852, which he had received from Dr. Jno. G. Johnson.

Dr. Schroeder read a communication from Dr. D. Mason, tendering a portrait of his father, Dr. Theo. L. Mason, President of this Society in 1842. On motion, duly carried, the offer of the gift was accepted.

WM. S. HUBBARD, Secretary.

THE BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, DECEMBER 4, 1902.

The President, W. M. FRIEND, M.D., in the Chair.

PENETRATING WOUNDS OF THE INTESTINE.

DR. O. A. GORDON presented a boy who one year ago, while at play, fell on an iron picket fence, and one of the pickets, which was very sharp, entered the groin and passed up into the abdominal cavity just above Poupart's ligament. He was lifted off the fence and taken to his home. His parents not fully comprehending the seriousness of the accident sent for their family physician and waited five hours before he arrived. When he arrived there was a loop of intestine protruding from the wound. The boy was sent to the hospital, and operated upon by Dr. Gordon seven hours after the accident.

The speaker found a loop of intestine in a pocket beneath the skin that had been made by the picket. This was slit up, and the intestine outside the abdomen was found uninjured; but upon drawing down more of the bowel, he found four perforations of the gut, and one tear in the mesentery. These were sutured and the abdominal cavity drained by means of iodoform gauze, after thorough irrigation with hot salt solution. The patient did rather poorly for about a week, then went on to a good recovery, and now has a firm scar.

ENDOTHELIOMA OF THE PLEURA.

DR. H. B. DELATOUR reported the case of a lady, 38 years of age, with the following history: In the February previous she had apparently taken cold and suffered with a pain in the chest, and this was subsequently followed by the development of a cough which persisted. During May, the cough still persisted with a little expectoration, and with a decided loss of flesh and strength. Marked dyspnea appeared, and she experienced a fluttering of the heart with pain about the heart.

Physical examination revealed all the respiratory sounds exaggerated over the left side; over the right side there was practically no breathing and absolute flatness from the clavicle down. There had been little expectoration, and the speaker expressed himself of the opinion, that the chest was full of fluid. Two days later he introduced an aspirating needle and withdrew 32 ounces of clear serum. He felt sure there was more fluid there, for it was running pretty freely, but he had hesitated to take any more, as the pulse was very weak, and there was some complaint of dyspnea produced. The needle had to be introduced between two and two and one-half inches before fluid was obtained. On withdrawing the needle, just as it was leaving the cavity, some bright colored blood was withdrawn. Five days later the needle was again introduced and on this occasion instead of getting clear serum as he had on the previous occasion, it was a muddy brownish serum, showing the presence of broken-down blood cells. On this occasion 44 ounces were withdrawn. Two weeks later he aspirated again and withdrew 64 ounces; a week later 56 ounces; and at intervals varying from one to two weeks up to the middle of September, when she died, he aspirated and withdrew from 30 to 40 ounces each time.

The case was one of progressive loss of flesh and strength and gradual death from inanition. The nervous system was much affected—the woman lost interest in everything. She would eat very little, not because of any particular stomach disturbance, but she seemed to gradually fail in every way. Dr. Herman Biggs, who was at the same place in the country, saw the case in consultation with him, and took some of the fluid for pathological examination, and reported it as a probable case of primary endothelioma in the pleura. No post mortem could be obtained. Dr. Biggs felt from his examination of the material alone that he could not make a diagno-

sis, but he based his diagnosis partly on the clinical history, comparing it with one or two other cases he had seen. Delafield in a recent number of the *New York Medical Record* reports four cases—evidently being all the cases he had seen in his extensive experience. These cases were all previous to 1888.

One of the points of interest was the absence of temperature; at no time was there any temperature. On several occasions the temperature was 99 or 99 $\frac{1}{5}$, but there seemed to be some outside cause for it.

Another curious coincidence, was in connection with menstruation. The lady menstruated in May; she skipped her menstruation in June, and at the exact date for her menstrual epoch in July, there was a rupture into the lungs or into a bronchus with the expectoration of a quart or more of the same reddish fluid as was withdrawn by the needle. That lasted for about four or five days, and then stopped as suddenly as it appeared, and there was no more of it until four weeks to the day on which it previously occurred, being the exact date for a second menstrual period.

CHOLECYSTITIS WITH RUPTURE OF GALL BLADDER.

DR. O. A. GORDON reported the case of a man, fifty years old, whom he saw in consultation, who was supposed to be suffering from appendicitis. The history given by the attending physician was, that the attack was abrupt in its onset attended by acute pain in the abdomen and vomiting, with temperature from 99 to 101, pulse 90 to 100. The speaker saw him on the third day, and found the conditions as above, and learned that this was his first attack of the kind. The abdomen was quite soft, with no tenderness or rigidity, except over the region of the gall bladder, which was not marked; jaundice slight; no tumor was palpable; the bowels were acting satisfactorily. He decided that the patient was suffering from cholecystitis, and advised the application of an ice bag for twenty-four hours, and operation if the conditions did not improve. At the end of three days his attendant reported him in better condition, with tenderness and pain subsiding.

He heard nothing further from him for two weeks, when his physician reported that he was not doing as well as he could wish. The speaker saw him again, and found him suffering from an extensive hypostatic pneumonia, with but slight tenderness over the gall bladder and no tumor.

In the presence of the pneumonia he did not consider an operation justifiable. During the next week he improved and was out of bed. At the end of the second week he was not doing so well. He was markedly septic, with a mass in the right hypochondrium, which did not resemble a distended gall bladder. Immediate operation was advised.

Upon opening the abdomen, a cavity, which would hold about a pint, was found filled with bile and pus, with a few small calculi, showing that there had been a rupture of the gall bladder, which the speaker judged took place about three days before, from the history of a sharp, sudden pain reported at that time. A counter opening was made in the loin, and rubber tubes and gauze introduced. The cavity was irrigated daily. The patient seemed to improve for the first three days, when he began to fail and died from sepsis on the eighth day after operation. While the speaker thought the decision to delay operation for a few days during the acute stage was in accord with the course generally followed in such cases, there can be no doubt that an earlier operation would have been better in this particular case.

The pneumonia was on both sides, but more marked on the right.

THE BROOKLYN PATHOLOGICAL SOCIETY.

HENRY G. WEBSTER, M.D., Editor.

The 437th regular meeting of this society was held on the evening of Thursday, January 8, 1903, at 1313 Bedford avenue. The President, Dr. Archibald Murray, was in the chair and the following program was presented.

Pathology of Gonorrhoea of the Urethra, Acute and Chronic. Dr. H. H. Morton.

Pathology of Gonorrhoeal Prostatitis and Vesiculitis. Dr. H. E. Fraser.

Microscopical Examination of Secretions of Urethra, Prostate and Vesicles. Dr. Archibald Murray.

Owing to the fact that a large part of Dr. Morton's and of Dr. Murray's remarks depended for their point on diagrams that cannot be here reproduced, the Editor regrets that only a fragmentary report of this most interesting program can be presented.

PATHOLOGY OF GONORRHEA OF THE PROSTATE.

HOMER E. FRASER, B.S., M.D.

The Prostate is primarily a sexual gland.—A fibrous capsule surrounds the organ. The glandular element is composed of compound tubular glands, with short ducts opening into the prostatic urethra. The gland tubes and ducts are lined with columnar epithelium with a basement membrane of fibrous connective tissue which supports the blood and lymph vessels and nerves. Muscular tissue surrounds the glands, and this, with the interstitial connective tissue between the muscle fibers, forms a ground work for the support of the glandular elements.

Contraction of the muscles aids in emptying the gland tubes, while the ducts which do not have this muscular support are unable to empty themselves, and in disease are liable to become plugged. The secretive part of the gland is the epithelium lining the tubules and blind dilated extremities.

The normal prostatic fluid is composed principally of mucus and granular phosphates and is mildly alkaline in reaction. The function of this fluid is to increase the bulk of the ejaculation during orgasm and to increase the viability of the spermatozoa, as it is found that where there is a lack of prostatic fluid the spermatozoa are immobile.

There is a sort of grouping of the glands on each side of the urethra, each group being designated as a lateral lobe, while a smaller cluster of glands with ducts opening into the prostatic urethra, just at the neck of the bladder, is known as the median lobe.

The prostate is affected in 90 per cent. of the cases of posterior gonorrhoea.

In acute prostatitis, in some cases, only the ducts of the glands are infected. Consequently the parenchyma of the prostate escapes infection. In other cases only one or more groups of the gland tubes are infected in an irregular scattered manner either in one or both lobes of the prostate. The inflammatory process may invade several groups of glands in either lobe. In some cases the whole mass of gland tubules is affected. Rectal examination in this latter condition shows the prostate to be uniformly enlarged, while when the glands are involved only in groups the organ has a modular or lumpy feel. When irregular single glands are affected there is a feeling as if shot were under the capsule.

The entrance of gonococci into the glands from the posterior urethra sets up an inflammation in

the lining epithelium. The gonococci enter between the cells and invade the subepithelial tissue. The epithelial cells become congested, are infiltrated with round cells and become degenerated and are thrown off. The intertubular substance of fibro muscular tissue becomes the seat of round-cell infiltrate and serous exudate.

The cavities of the tubules become dilated and are filled with desquamated epithelium, altered prostatic mucus, pus cells and gonococci. The walls of the gland ducts are infiltrated and become stiff, the calibre enlarged and at times ducts become plugged. Healing takes place by the tissue being freed from gonococci by phagocytosis.

There is an absorption of the serous exudate, the degenerated epithelium lining the gland tubes is thrown off and regeneration takes place. The round-cell infiltrate is absorbed.

Small abscesses may form either from blocking up of the gland ducts or breaking down of round-celled infiltrate, and usually discharge into the urethra or become inspissated or calcified. Instead of healing the process may become chronic.

The condition just described is called acute catarrhal prostatitis. Acute parenchymatous prostatitis may begin as catarrhal or may be parenchymatous from the beginning.

Yellow foci of infiltration appear near and between the glandular elements which increase, liquefy and form small miliary abscesses. These terminate either by absorption or by discharge of contents into the urethra through the gland ducts. The cavities heal by cicatricial scars or may leave pockets which fill with urine at each urination. Several of these small abscesses may coalesce and form one large abscess which may destroy the whole prostate, leaving only the capsule.

Chronic Prostatitis.—Gross appearance. Enlarged in certain parts or seat of diffuse swelling. The cut surface appears as pale dirty brown, softer and juicier than normal, with infiltrated bands running through it.

Microscopic appearance:

Prostatic tubules enlarged and changed.

Small cystic cavities may be found.

The epithelium of the ducts and tubes swollen and degenerated. The walls infiltrated with round cells.

The cavities are filled with turbid fluid, consisting of pus cells, degenerated epithelium and changed prostatic fluid.

Gonococci may be present. At times the cavities may contain only altered prostatic fluid.

The intertubular substance, the musculo-fibrous tissue, is infiltrated with tough, broad, fibrous

bands of ivory white connective tissue. The prostatic ducts are infiltrated and gaping. At times the ducts are blocked and the diseased glands are the seat of small or large abscesses.

In the young, with the removal of the cause of subacute inflammation, the increase of young connective tissue ceases and there is a contraction of the adult connective tissue, and the hard small fibrous prostate is found, unless this fibrous sclerosis sets up a proliferation of the epithelium lining the tubes which later in life gives the soft glandular hypertrophy of prostate.

In middle age and in old men resolution and healing do not so readily follow, and instead of cessation of connective tissue hyperplasia the condition becomes chronic. The connective tissue hyperplasia causes an atrophy of the muscular tissue. When the connective tissue formation is most active in the periphery of the prostate the walls of the alveoli become thickened and atrophy of the epithelium takes place and the gland becomes destroyed. In case the connective tissue formation is active in the walls of the ducts they become narrowed or destroyed, the gland cavity becoming cystic.

DISCUSSION.

DR. H. H. MORTON: The subject of the changes in the prostate is one which is exceedingly difficult to understand from a mere description in the text books, and in order to get a faint idea of it it is necessary not so much to see the microscopic specimen itself as a diagram.

The point which Dr. Fraser makes of the difference in diagnosis between prostatitis and vesiculitis is an exceedingly valuable one. When I first began to examine for the vesicles and prostate I put my finger in the rectum and struck a big mass there, and it seemed to be all prostate. You could not tell where the prostate began or where the vesicles were. Dr. Fraser and I worked at the thing in the clinic, and he suggested that in this condition the point was that where the connecting bar at the margin of the prostate could be outlined, it was apparent a perivesiculitis had not taken place. Acting on that, Dr. Fraser and I examined cases with a great deal of care, and by paying attention to that fact we are now able to make a differential diagnosis between inflammation of the prostate alone and prostatitis and vesiculitis with perivesiculitis.

In a great many of these cases the vesicles are involved with the prostate, and in many cases the prostate is involved alone. As a matter of scientific interest it is important to make a differential

diagnosis to know just exactly what conditions we have to deal with, although really the treatment by massage, etc., is the same whether there is a perivesiculitis or an inflammation of the prostate.

The importance of knowing the condition of the prostate in these cases of gonorrhea cannot be over-estimated. In nearly every case of chronic gonorrhea, which has lasted for any length of time, we find the prostate is involved, or perhaps both prostatitis and vesiculitis. Recently Frank, in Berlin, examined a number of cases (650) of gonorrhea which came to his clinic. He found in a large proportion of these posterior urethritis was present, and in every case where a posterior urethritis was present the prostate was involved at the same time.

These results are rather startling. We always knew that prostatitis was very common, but we did not suppose the prostate was involved in every case of posterior urethritis, as Frank's investigations have shown it to be.

The prostate will sometimes get well of itself in chronic gonorrhea, but the changes which Dr. Fraser has pointed out, of infiltration around the tubules and the formation of scar tissue in the substance of the gland, nature does not take care of; they have to be gotten rid of by medical assistance. When the prostate is involved in these cases of chronic gonorrhea we ought not to be satisfied to treat the urethra alone. The prostate is an important organ to look after in chronic gonorrhea for various reasons. In the first place, there is the danger of infection in coitus. The gonococci will lurk in the prostate for years. There are well authenticated cases on record that the gonococcus has existed for five years in the prostate, and they have had all the conditions favorable for their growth and development.

Then the next thing is the effect a chronic inflammation of the prostate has on the nervous system. Almost every patient that has a chronic prostatitis is hypochondriacal, depressed, melancholy, and sometimes these symptoms go so far that they become suicidal. In this frame of mind they are very apt to fall in the hands of the advertising quacks. The symptoms of prostatitis are not prominent. There is apt to be no discharge from the meatus; there are shreds in the urine, and some of the comma-shaped hooks, which are formed in the prostatic ducts. We may not find them; the urine may be clear until after the prostate is expressed, but the nervous symptoms of depression and melancholia, and also the sexual symptoms, are very characteristic. These patients

with prostatitis are generally impotent—more or less so.

Another fact, which has lately been pointed out by Cyechanowski, of Poland, and Green and Brooks, of New York, and has been alluded to by Dr. Fraser, is the fact that the senile enlargement of the prostate in old men is certainly inflammatory in character, and very likely it starts from an attack of gonorrhea affecting the prostate. The connection has not been absolutely traced out between the infection of gonorrhea and the prostate, but probably the senile hypertrophy started originally as an attack of gonorrhea in the prostate, and if the case is allowed to go on untreated senile hypertrophy may follow, many years after the original attack; so that in itself is a sufficient reason for paying the closest attention to the condition of the prostate.

In regard to Dr. Murray's paper: The differential diagnosis of gonorrhea which was spoken of in his paper is one we have discussed in private several times. Some few years ago we supposed the Gram's test was infallible—that if the diplococcus decolorized that settled the question of its being gonorrhea. As a matter of fact, however, I have run across two cases where the diplococcus was found and decolorized with Gram—the laboratory diagnosis was gonorrhea, but that did not seem to fit in with the clinical findings, and it was probably one of those cases of pseudo-gonorrheal urethritis. That same fact was brought out a year ago in a paper by Johnston, of New York, who had the opportunity of getting a number of cases of fresh urethritis, in which gonorrhea had never been present before. He found among the organisms which flourished in these urethras, in certain cases, diplococci, which excited a discharge; and strange to say they decolorized with Gram, but as a matter of fact the cases were not true gonorrhea. The cases were decided clinically, and in one or two cases by cultures; so that when it comes to depending absolutely on the Gram's test as differentiating true from pseudo-urethritis I do not think we can depend absolutely on it. It is right in ninety-nine cases out of one hundred, but in the hundredth time we will slip up if we depend absolutely on Gram's test.

The importance of examining the expressed secretion from the prostate and vesicles has been alluded to by Dr. Murray. Of course, it is extremely important when the idea of matrimony is contemplated by the patient to make sure there are no collections of pus or gonococci in the prostate. Now, in speaking of the examination of the

prostatic discharge, we insist that it is not enough that no gonococci should be found; we require that the prostatic secretion should be free from pus; for the reason that there may be a few gonococci lurking somewhere, which have not been expressed in the secretion from the prostate. If pus is there, there is a suspicion some gonococci may be present; so that in order to declare a patient with prostatitis cured we ought to insist there is no pus in the prostate secretion, showing the inflammatory process is entirely at an end.

The diagram of the secretion from the vesicles was an interesting one as compared with the normal semen. In the discharge from the normal vesicles there is a large number of spermatozoa, and in vesiculitis there are but a few deformed spermatozoa in the fluid. A curious fact is that the toxins produced by the gonococcus seem to have a destructive effect on the spermatozoa in cases of vesiculitis; and we can observe the progress and improvement in the cases simply from the microscopic findings. In the cases of vesiculitis where there is a good deal of pus formed the microscope shows few or no gonococci. As the pus gets less, under stripping and massage, the spermatozoa come back and appear in the fluid, in small numbers to be sure, and with not much activity and under-sized. Then after the pus is entirely gone the spermatozoa come back in full force and activity, showing the pus has a direct toxic activity on their life and vigor.

DR. N. T. BEERS: Dr. Murray states that the reaction of the prostate juice is acid. I always thought it was alkaline.

DR. A. MURRAY: There is a contradiction. Most books I admit say the secretion is alkaline or neutral possibly, but the latest histologists give it as acid.

DR. H. E. FRASER: I knew this afternoon of the doctor's claim that the prostatic fluid was acid. A patient came into the office to-night, and so I massaged his prostate and tested it with litmus and found it strongly alkaline, although his urine was acid.

DR. A. MURRAY: I looked the question up in Boehm & Davidoff's, which is about the latest book out, and they give the reaction as acid. There are a good many contradictions like that. Most histologists give the character of the gland as serous and not mucous. All the books speak of it as mucous.

DR. N. T. BEERS: It is generally supposed the secretion is passed down the canal to neutralize the urine that might be there to prepare for the reception of the spermatozoa.

BROOKLYN MEDICAL SOCIETY.

The eightieth regular monthly meeting of the Brooklyn Medical Society was held on the evening of Friday, February 20, 1903.

The President, DR. ALGERNON T. BRISTOW, in the Chair.

Before proceeding to the regular order of business, Dr. Bristow introduced Dr. Joshua A. Van Cott, who gave a lantern slide demonstration of the pathology and bacteriology of pneumonia. It was an extremely interesting discourse, showing how far we have progressed in a knowledge of these conditions from the theories of Cohnheim, Metchnikoff and Ehrlich.

CLINICAL SECTION.

Dr. A. T. Bristow exhibited a case of total laryngectomy. The patient on whom he operated three years ago had an epithelioma of the larynx. For this he performed a total extirpation of the larynx and removed two rings of the trachea; the patient recovered, and at the present time is doing well and can formulate and distinctly whisper words.

He also presented a case of hydronephrosis occurring in a horseshoe kidney: operation and total nephrectomy: exhibition of patient in excellent condition.

He also presented two external carotids which he removed for malignant disease of the lower jaw.

PROGRAM.

"The Etiology of Insanity," Dr. R. C. F. Coombs.

Discussed by Dr. C. F. Brush, Dr. Elliott, and Dr. John D. Sullivan.

The Society then proceeded to the regular transaction of business.

The minutes of the previous meeting were read and adopted.

APPLICATIONS FOR MEMBERSHIP.

Dr. Chas. Tag, 168 Keap street, L. I., '98; Dr. H. V. Duggan, 164 S. Fourth street, L. I., '93; Dr. Silas Blaisdell, 500 Bedford avenue, N. Y. U., '82; Dr. Louis Lanzer, 329 Marcy avenue, U. Tenn., '92. Proposed by Dr. W. F. Koerner; seconded by Dr. John H. Droge.

ADMISSIONS TO MEMBERSHIP.

Discussion.

Dr. G. W. Vandergrift, Dr. G. A. Williams, Dr. Adam Schauf.

Motion was made seconded and carried that the resignation of Dr. John F. Golding be accepted.

Dr. J. W. Ingalls, representing the Board of Trustees, made the following report: "Resolved, that the sum of \$300 and its accruing interest be set aside as a building fund, none of which shall be spent except with the consent of a four-fifths majority of the members present at a regular meeting of the Society; and that due notice of such proposed action shall be given at a previous regular meeting."

The Board of Trustees also recommended that the Society keep the present meeting rooms at the increased rental.

A motion was made, seconded and carried, that the report of Board of Trustees be accepted.

Dr. Alfred Bell reported excellent progress with the dinner arrangements.

A motion was made, seconded and carried, that the preliminary exhibition and stereopticon demonstrations be encouraged by the Society, and that the expense be met by the Society.

Adjournment and social session.

HUGH EDWARD ROGERS, M.D.,
Recording Secretary.

THE BROOKLYN GYNECOLOGICAL SOCIETY.

FREDERIC J. SHOOP, M.D., Editor.

Stated Meeting, February 6, 1903.

The President, FRANK BALDWIN, M.D., in the Chair.

PIECE OF SILK LIGATURE REMOVED FROM A SUPPURATING SINUS THREE YEARS AFTER HAVING BEEN PLACED IN THE ABDOMINAL CAVITY.

Dr. O. A. GORDON: I have a specimen here of a silk ligature I removed from a suppurating sinus three years after it was placed in the abdominal cavity in operation for removal of a small fibroid. It is in a perfect state of preservation (rather coarse silk) and undoubtedly was the cause of long continued suppuration. I brought it here to-night because it shows there has been no change whatever in the silk. It was not a séptic case when operated on.

Dr. J. O. POLAK: Dr. Gordon has made a point in favor of the use of absorbable sutures within the abdominal cavity by presenting this silk ligature removed from an abdominal sinus long after operation. I had the experience about three years ago of operating on a woman who was seven years ago operated on for a fibroid by hysterectomy. I excised a sinus that had not closed and removed from the sinus a needle threaded with a silk ligature. This shows how long these things will take to come out. During that entire time she had had continued suppuration in a sinus going down to the stump of the broad ligament. One end of the suture had been tied and the other end had a needle upon it. It is simply another instance showing how even fine silk (and this was a case of rather fine silk) is not absorbed. When we use silk in the abdominal cavity we hope to have it covered in and encysted. I doubt if there is very much change in the silk. It depends entirely upon a sterile inclusion by the formation of plastic lymph. Some of the statements that Bland-Sutton, Tait and various other English operators have made in regard to the absorbability of silk, is not borne out in American surgery. I have never felt safe in using silk in intestinal suture, even the fine black silk.

Dr. W. B. CHASE: I have not had much experience in my own cases, because I have not put in silk in the abdominal cavity except once in 15 years. The place it occupies in surgery in the peritoneal cavity is very small—perhaps it is wise to use it very fine sometimes in suturing the intestine, but I get along very well with absorbable ligatures. I am becoming more convinced of the fact, that it is not the best surgery to use unabsorbable ligatures where you can use absorbable ones.

I have a vivid recollection of a statement I heard in the Academy of Medicine, in which an eminent gynecologist in a neighboring city was telling a friend with great hilarity how he cured these sinuses. He said he had devised a hook, which he could run down to the bottom of the sinus, and hook out these unabsorbable ligatures and cure his patients, never appreciating how much better it would have been not to have used them.

Dr. J. R. TAYLOR: A great many times I have used fine silk in closing the peritoneum over the appendix after an appendicectomy, and I have never seen bad results from it in any way. I presume it was simply covered in by the lymph which

formed around it. I would not undertake to say it was absorbed. Occasionally you get an opportunity to reopen a case on which for some other reason you have operated and find fine silk has become absorbed, but in my own opinion I believe very little of it ever disappears.

Dr. L. G. BALDWIN: I removed a ligature about as thick as this one (it was waxed silk) four years after an ovariectomy, and the possessor of it when I saw her was the subject of a very large pelvic abscess and generally septic. I opened through the abdomen and fortunately for us the ligature washed out. She was one of the sickest women I ever saw get well.

I do not believe in using silk in the abdomen. I can see no objection to using very fine silk in intestinal work, but I prefer fine catgut. I have never had any slipping from catgut ligatures, never got a secondary or immediate hemorrhage. Occasionally where the pedicle was cut too short hemorrhage occurred immediately, but a slipping of a ligature I never had and never had a ligature absorb too quickly.

A recently fatal case, in which I had opportunity to examine the stump of a hysterectomy eight days after the operation, the broad ligament had been tied off with No. 3 catgut, non-chromicized, which as you all know is a pretty fine gut. At the end of eight days it was just as secure and solid as when I put it in. There had not been a sign of slipping. It was only with the greatest difficulty that a probe could be forced under the ligature. That, to me, was interesting, because I had never had such an opportunity before to know just how long these particular ligatures lasted. I have had no bad results from it, but I did not think it would last as long as that. I certainly believe that catgut is much safer to bury in the tissues unless the silk is very fine.

Dr. W. E. BUTLER: I never use silk at all in the abdominal cavity, either for intestinal work or for the appendix, as I believe it is not absorbed and is the source of irritation and danger. As Dr. Taylor says, Deaver uses it almost entirely. A writer recently makes a particular point of the use of catgut sutures in the peritoneal cavity. He regards it as exceptional. I have used silk in the abdominal wall once or twice to my sorrow. That was a good many years ago. In a case operated on by Noble of Atlanta, I removed a silk ligature nine months after the operation. It had caused some irritation, a slight pimple had formed and following down the sinus which had formed I removed a knotted silk suture similar to

the one Dr. Gordon showed. That was in the abdominal wall, not in the peritoneal cavity.

Dr. Baldwin's experience from the autopsy mentioned is a most valuable one, because it shows catgut does not absorb as quickly as we believed it did.

Dr. J. C. MACEVITT: For the last three years I have used silk almost exclusively. Some three years ago we had so many unfortunate experiences with catgut that, while a firm believer in its efficacy, I changed off to silk, and my success has been such since that time, that I confine myself almost exclusively to the use of silk.

I hope to bring before the Society in a few months a resumé of a number of abdominal sections, which will demonstrate in a manner beyond controversy the advantages of silk in abdominal work.

At one time when the general surgeons at St. Mary's Hospital were having pus cases, it was recognized first by the internes that the cases on the gynecological side, in which silk was used, were free from pus. That may be due to the fact that the catgut was not sterile. I think the fact that one can so thoroughly sterilize silk, compensates for its slow absorbability. You cannot always be sure of your catgut. If so, why do we have so many modes of preparing catgut? It is still a question to this day as to the proper preparation of catgut, and until I can find some other grounds or some better reasons against its use than I have up to the present time, I shall continue to use silk. I use catgut for the tying of small vessels, but nearly all my intra-pelvic work is performed with fine silk, and my peritoneal cavity is always closed with fine silk.

I can only recall one case now where I have had any trouble, and that was a ligature that I removed from the wound within four weeks. A sinus formed three weeks after operation. Now I do not mean to say that silk of the thickness of the specimen presented by Dr. Gordon should be used. I can scarcely conceive of a vessel requiring silk of this size. When silk is found in a sinus it is looked upon as the cause of the trouble, the catgut may be absorbed, but we know not what harm it has performed before it disappears. Braided silk should not be used.

Dr. C. R. HYDE: I have used silk only a few times in the abdomen, and then only when doing a suspension after the Kelly method with fine black silk. I have never had any bad results from it.

I prefer to use catgut in the peritoneum. When I was at the Woman's Hospital as House Surgeon in 1896, the entire suture material used in the abdomen at that particular time was silk, and I remember very distinctly picking silk ligatures from sinuses and for that very reason Dr. Herman Grad devised a method for removing them. It was only during the latter part of 1897 that they began to use catgut. I remember one distressing case of a large fibroid, where a local peritonitis came on two weeks after the operation, and three or four days later the woman passed a large No. 13 braided silk ligature by the bladder. When we began to use catgut in abdominal hysterectomies no more sinuses formed.

So far as the objection to catgut in regard to its sterilization is concerned, I believe the fault to a very large extent obtains in the sterilizing of the catgut by the nurse. I know at the Long Island Hospital we had trouble with catgut, because the nurses did not understand Cumol sterilization, and sterilization was not perfect until one of the nurses after four or five months found out the proper way of Cumol sterilization. No. 2 is the most commonly used size of catgut.

Dudley of New York uses to a very large extent Japanese twisted silk. He further claims that this is not encysted, but that it is absorbed. That struck me as peculiar, because I doubt whether silk is absorbed. If he said encysted I think most men would be willing to accept that. I believe that catgut is the material to use in the abdomen, although there are others who have very good results with silk. I see no objection to using silk for the subcutaneous structures in the abdominal wall or anything of that character. If it were to be used in my own abdomen I would rather have catgut than silk.

Dr. W. MADDREN: I know that Skene used silk very largely and his results were very good, and I have used silk quite extensively, that is the preparation of silk that Dr. Skene had Heydenreich prepare, a silk that was treated with wax, salicylic and carbolic acids, and I regard that with a good deal of favor. I think it is the next best thing to silk-worm gut, as far as its use in sewing up the abdominal wall is concerned. I have an impression that silk will be absorbed after a sufficient length of time in the abdomen or in the abdominal tissues. In suturing intestines most everybody uses silk, and, if rightly done, we have no trouble from it.

Dr. W. J. CORCORAN: Listening to the discussion it strikes me there is one point at issue that might be the main point in the whole discussion,

that is, how is your material prepared. If you put aseptic silk sutures into the abdominal cavity in an aseptic manner, they will stay there and do no harm. Catgut the same. Catgut is more difficult to prepare than silk. All you have to do is boil the silk and handle with clean hands and keep it in clean places and it stays clean. Catgut on the contrary will furnish a breeding place for germs a little bit quicker than silk and you get more trouble out of it if it is not clean. Where do you place the blame? We have the operator, the nurses, the assistants, the sutures, and everything to consider with reference to sepsis or asepsis.

Dr. W. B. CHASE: We have had a good deal said about cases septic and aseptic, and I should like to ask Dr. Corcoran in case he had done a hysterectomy in a septic case whether he would prefer to put in the tissues (not sterile) a ligature to stay there indefinitely as silk will, or a suture which he recognizes will do this work and will be absorbed in a reasonable time? I appreciate the attitude of the gentlemen who use silk, yet I think there is no question whatever, but that catgut can be made absolutely sterile.

Dr. W. J. CORCORAN: There is no question as to what material to use for a ligature or suture the way Dr. Chase puts the case. With a septic focus to be removed, I would certainly use catgut. I would, however, leave a hole for it to come out. That was not the question I brought up. I said, let us take into consideration all the factors in the question. Do not blame silk or catgut. Consider all the factors, the material, the way it is prepared and how it is put in.

Dr. F. J. SHOOP: Silk acts as a drain. It is composed of more than one fiber, twisted or braided whichever you use, and if one end or portion of it comes in contact with a septic focus the whole ligature will become septic in a short time. The reason silver wire becomes perfectly encysted is because it does not act as a drain. The same with silkworm gut. Silk prepared as Dr. Maddren said with wax may act the same way, but silk not so prepared will act as a drain, and give trouble. With one or two exceptions I have not used silk in any of my surgery during the past 10 years.

Dr. L. G. BALDWIN: I do not believe it is all a question of sterilization, but one of direct irritation. We will all allow that silkworm gut is as easily sterilized as silver wire. The first case that I operated on in private after leaving the Woman's Hospital was to remove a silkworm gut ligature in a case in which a hysterectomy

had been done two years before in the Woman's Hospital. That had set up an abscess. I worked it out from the bottom of the sinus, and I believe that was a question of irritation—not sterilization. A possible reason was that bacteria from the intestinal canal or bladder were drawn to the ligature, invading the peritoneal cavity.

Dr. Gordon's case occurred a long time after operation. It is hardly to be supposed that streptococci remained in the ligature for two or three years, and in my case for four years, and then without any reason started trouble.

DR. W. MADDREN: We spent most of our time several years ago in our service at the Kings County Hospital in taking out silver wire sutures, which our predecessors had put in with every case of hernia. You may say that was irritation. It was, perhaps, a faulty method of application as well, because with a large number of herniotomies, recently done at Johns Hopkins not two in 100 were removed.

DR. O. A. GORDON: For the past five or six years in nearly all the cases I have operated on for appendicitis, I have used the purse string suture of silk for inverting the stump, except where there was free pus. I think we will agree that all these cases are septic, and I have not had a single instance where it has caused me trouble afterwards. The wounds have been closed up within two weeks, and a good many of them were drained. To be sure it was fine silk.

Dr. Baldwin speaks of irritation as a cause. I believe that silk will not act as an irritant unless it becomes septic.

PRELIMINARY REPORT OF CASE OF DOUBLE OVARIAN DERMOID CYST.

DR. C. R. HYDE: I want to make a preliminary report (the full report to come later) of a case Dr. Palmer operated on in his service at the Long Island Hospital of a double dermoid cyst. I have been unable, so far, to find in the *Index Medicus* any report of a double dermoid cyst. If any gentleman here has had that experience or has heard of any such occurrence, I should very much like to hear of it.

DR. L. G. BALDWIN: In a series of specimens that I showed to the Brooklyn Medical Society, two years ago, there was a double dermoid cyst among them. In one there was a large amount of hair, and in the other an almost complete formation of the base of the skull.

PAPER: PERSONAL OBSERVATIONS ON REMOTE RESULTS OF CONSERVATIVE SURGERY ON UTERINE ADNEXA.

By DR. J. O. POLAK.

Discussion.

DR. W. B. CHASE: The writer of the paper alluded to the proper preparation of the patient, a matter which I think has been too often neglected, and with results which have been very detrimental to the patients, making their recovery slow and unsatisfactory. He also alluded to another matter, which I think will bear emphasis. From what I have seen in hospitals and elsewhere the restrictions as to allowing a patient to move in bed, after a laparotomy, are altogether too great. I have had nurses in my service, who from their training led me to believe they had been taught to keep their patients absolutely on their backs for the first two or three days, and that it was dangerous for them to move. Nothing can be more prejudicial to the comfort of patients. True, in some cases the pathological condition might warrant the patient being kept quiet where the structures sutured were friable, but I always allow my patients to move as much as they desire (within reasonable limitations) particularly turning from one side to another, bringing up the knees and extending and flexing them at their pleasure.

Regarding the work the doctor has performed, the conditions for which resection of the ovaries was done, was not given, and the more exact conditions for which a partial resection of the ovaries was done, was not entered into. I suppose in some of them suppurative changes were present, and doubtless cystic degeneration was present in others, though he alluded more in detail to the condition of the tubes.

He made one statement that perhaps he will explain: Why, in removing a diseased right ovary, the appendix should be removed as well. I cannot see, on rational grounds, why a healthy appendix should be sacrificed because a woman had some trouble on that side. If a suppurative process had taken place in the ovary and adhesions were present in the neighborhood of the appendix, then I can see why it might be desirable to remove the appendix.

I was very much interested regarding the partial resection of tubes slightly diseased, and the reproduction of healthy tissue. That has been a mooted point, and a point in which men of experience have taken very different views, and

claimed very different results. One of the most brilliant men in this country made the assertion that he questioned whether, in opening up diseased tubes under these conditions, there can be a reproduction of healthy mucosa; but taking it from a clinical standpoint, it would seem that such might be the case.

Another thing Dr. Polak has done, merits our hearty commendation. He acknowledges the mistakes he has made, which perhaps we are rather reluctant to do, and the man who does that, and does it unhesitatingly, will help himself and his neighbor.

Another matter he spoke of was adhesions. I think too little care has been exercised in preventing adhesions.

Whether or not flooding the peritoneum with a saline solution, as he suggests, lessens the liability to adhesion very much may not be altogether possible of demonstration, but clinical experience may show such is the case.

Now on the other hand, whether it is best in these abdominal operations to leave fluid in the peritoneal cavity is a pretty grave question. Lately I have not used saline solutions, and I have no reason to regret it.

As to the after treatment of laparotomies, I think the main discomfort in the majority of cases is the presence of gas in the intestines after the operation, even though very thoroughly emptied in advance. I have reached the same conclusion as Dr. Polak, that the sooner you get the bowels to move by the use of salines, the better it is for the patients, and the smoother and better the recovery.

DR. L. G. BALDWIN: I have done nothing like the number of conservative operations on the appendages that Dr. Polak has. In the main the cases I have done have been fairly successful. The ones in which I have been disappointed, if they may be called conservative operations, were generally those where I have left one ovary and have later had to remove it. I do not remember any case where I have left either a part of the ovary or part of each ovary or part of the tubes, that I have had to reopen the abdomen. I do not know how many of them have had to be reopened by others, but so far as I know they have not come back to me.

One interesting case of conservative work on the ovaries was a young married woman, who positively refused to have a laparotomy and also positively refused to have either ovary removed, came under my care and at the urgent solicitation of her husband and friends I consented to do what

I could under these conditions. I opened through the posterior cul-de-sac. The right ovary presented low down, was very much distended with pus and about the size of a large duck-egg. I ruptured it with my fingers and let out a quantity of thick creamy pus. Then I searched for the other ovary, found it higher up, and by a little manipulation brought it down. It felt as if it contained fluid. I cut it in two with a knife, and evacuated a considerable amount of creamy pus. Except the surrounding adhesions, these were the only lesions. I packed the cavity of each ovary with iodoform gauze and left it in a week. That case made a perfectly smooth recovery. She has been under my constant observation, and in the two and a half years she has paid but one visit to my office. I see her husband often and I know she is perfectly well, and is a picture of health and free from pain of any kind, though she has not obtained her desire of having children. That to me is a most perfect result. Had I followed my own inclinations, I would have removed those ovaries, because there was nothing but a shell left.

I feel very much at a loss to know how to look upon movable kidneys. We find so many of them where there are absolutely no symptoms referable to them, that there is a grave question in my mind where the normal mobility leaves off and the abnormal begins. I should like Dr. Polak to tell us in closing just where he draws the line, if he can.

As to bandages for movable kidneys, I believe they are useless so far as retaining the kidney in position is concerned. I believe it is impossible to keep the kidney in place by any mechanical device. You may support the abdominal walls and keep the whole viscera nearer in place.

As to the leaving of saline solution in the abdomen; sometimes I do and the cases do perfectly well; and then again for some reason I do a series of cases and do not leave it in, and they do perfectly well. I have not yet decided in my own mind what class of cases it is best to leave the saline solution in the abdomen, and the reverse. If the intestines are hard to get out of the pelvis and keep out during the operation, I am quite apt to fill the pelvis with saline and leave it there.

As to early movement of the bowels, I think that is certainly one of the most desirable things to obtain, and I always, when there is no special contraindication, give a couple of grains of calomel the night of the operation and follow with saline the next morning, and try to secure a movement from the bowels very shortly after the first

24 hours. I believe it adds a great deal to the comfort of the patient. Certainly they convalesce more quickly and much more smoothly. I am much pleased to hear that the writer of the paper has had good results from the administration of Epsom salts just before opening the abdomen.

DR. O. A. GORDON: In regard to referred pain, I saw a case recently, a woman, where the pain was emphatically in the gall bladder region, the tenderness was over the appendix, and when the abdomen was opened it was found to be a salpingitis with adhesions. The gall-bladder and appendix were apparently perfectly normal. This was a right-sided affair and the appendix was not removed. Most operators that see so many people in trouble with their appendix feel as Dr. Polak does, when you get hold of one it would be a good plan to take it out; but where you find a perfectly normal appendix, I do not see why you should take it out, unless you act on the general principle, that all people are better off without their appendices.

About three years ago I removed the right ovary from an unmarried woman through the vagina; it was somewhat enlarged, slightly cystic, and had been troubling her for a good many years. The tumor could be felt in the cul-de-sac through the vagina, and I had made the diagnosis of a prolapsed ovary. Not wishing to deprive her of the other ovary, I pushed it up and packed it in position with gauze, and that left ovary has remained in place for three years. It cannot be felt through the vagina, the young woman has been perfectly well so far as that is concerned, and has had no trouble with the appendix.

All people are subject to appendicitis, and after a right-sided ovariectomy, such a one has the same liability as before. The fact that a few cases occur after such operations does not prove anything.

DR. W. J. CORCORAN: I think the doctor shows a great deal of courage in making the innovation this evening of presenting a report of failures. It is not the usual method of presenting papers to the Society. Outside of that I have but one criticism to make, that is, he has eliminated the only test of conservative work I have ever heard mentioned, that is the possibility of pregnancy. I think the doctor's suggestion that a woman has other functions besides bearing children a happy one, the pursuit of life, health and happiness for instance.

DR. W. E. BUTLER: In a large number of the patients coming to us with dysmenorrhea we can trace the cause to a sacculated condition of the

tubes, and when discovered we should remove them, especially if the uterus is large and retroverted, causing congestion of the entire genital tract. The tubes at each recurrent menstruation become congested, the cortex becomes thickened and swollen and retards the return flow. In these cases we have some damming back of blood in the peritoneal cavity producing adhesions, which cause an immense amount of pain.

Dr. Polak did not mention how the tubes were taken out. I believe they should always be excised at the cornua. That avoids any exudate there and allows of no stump to finally form a little abscess.

Well-worthy our thought is the raising of the ovary to a higher plane in the pelvis, thus restoring the normal circulatory equilibrium.

The object of removing an appendix after the right-sided adnexa are removed is pointed out by Fowler; there exists some collateral circulation from the ovarian supply. There is a small branch running from the ovarian artery, and in a large number of these cases the mesentery of the appendix is found running down and forming almost a portion of the broad ligament. This was seen in two cases in the service of Dr. Jewett at Long Island College Hospital. In these cases if you remove merely the adnexa, you cut off some of the blood supply of the appendix and you are apt to have trouble. I believe it is our duty to remove the appendix if there is trouble in the adnexa on the right side.

DR. W. MADDREN: I commend the doctor for his frankness in treating the subject as he has. I think his statement that he removed the appendix in right-sided trouble is in keeping with conservative work, even if the appendix is normal in appearance, provided the time permits and there is no contraindication.

Dr. Belcher states that 33 to 40 per cent. of people have evidence of appendicitis, and while it is true, as Dr. Gordon says, that in a certain proportion of operations the trouble would come, because of the liability of any one to have it,—yet operations on that side seem to invite an attack.

DR. C. R. HYDE: I would prefer not to make remarks on conservative ovarian surgery. When I read my paper on that particular line of work three years ago, my remarks met with a certain amount of misunderstanding, which makes me averse to start in the discussion again. At the same time I hold to my position, because I believe I am on the right track.

I want to ask Dr. Polak one question: Whether he has performed any secondary operations for

removal of ovary on cases where he has previously performed a conservative operation on the ovary? A year ago I had to remove an ovary, on which I had previously done conservative work. In the first operation I left a fringe of the ovary, and four months later had to remove the ovary, which was as large as a large prune. In some recent correspondence with Dr. Kelly of Baltimore, I asked him if he knew of any case like that in Johns Hopkins, and he said he had not. I believe that my position is correct, that hopelessly cystic ovaries should be removed, provided the woman does not forbid their removal, or she wishes a child, or for other social reasons. There are certain small cysts normally on the ovary, but that does not make them cystic ovaries. On the ordinary small cystic ovary with few cysts and hilum not involved I believe conservative work can be done. I am not so radical as the gentlemen here wished to make me out some three years ago. I believe in conservative work.

I always remove the appendix every opportunity I get in opening the abdomen. Testu claims there is a small artery, which runs from the meso-appendix to the broad ligament and the tube, through the "Ligament of Clado," and he thinks the collateral circulation is established there, and this is the means of infection oftentimes from the ovary to the appendix or appendix to tube, or whichever way the infection does travel.

DR. W. P. POOL: There is one point in connection with the use of salt solution in the abdomen that I think has not been spoken of, which is that it prevents to a great extent the distressing thirst which frequently follows abdominal surgery. Whether or not it has been useful in preventing adhesions, I have never been able to determine.

Post-operative pain is unquestionably most commonly caused by post-operative adhesions, and it seems to me if the patient be in proper condition, it is better to take a great deal of time in covering all these small surfaces than to close the abdomen hurriedly, leaving raw spaces, which may subsequently give trouble.

The early opening of the bowels certainly does help very much to prevent adhesions between the bowels and stumps where organs have been removed. It also prevents to a great extent the paresis of the bowel, which often follows any extensive handling of it and is certainly to be commended. I have not gone so far as Dr. Polak in giving a cathartic just before the operation has been performed, but I believe that an effort should be made within 24 hours to empty the bowel.

I want to add another case to Dr. Polak's. It turned up in the clinic, having been operated on some five or six years ago for movable kidney on the right side, afterwards a double oöphrectomy was performed. She now has chronic trouble about the appendix. It is also interesting to note that in this case the right kidney is now low down in the pelvis and freely movable.

DR. J. C. MACEVITT: I confess I have had a most disquieting feeling since the reading of this paper and the discussion as well. I have thought of the number of patients I have operated on in the past whose appendices I have not taken out. However, they never complained of any pain in the appendicular region afterward.

How practical and how theoretical is this statement that the appendix ought always to be removed when operating upon the right ovary? What statistics have we to show that the appendix through the removal of the right ovary has suffered from inflammatory conditions? I have not met with any data on this subject in my readings, nor have I met with any in my personal experience. You all know there is a tendency to faddism. You know how it was carried in the past too far, and is it going to carry us too far in this particular case? The greater length of time we would spend in operating would lessen the patient's chances. Now sometimes we are going to meet with difficulty in removing these normal appendices. It is going to take time. We discussed the use of thread earlier in the evening. With silk or catgut there is an additional element of danger given to this removal of the appendix if the views of some of the gentlemen of this Society are correct.

Dr. Polak in his paper has spoken of his failures, and yet he has not analyzed them. He has generalized his failures. He has spoken of his failure to recognize referred pain, and then in a few sentences following he states, in his operations he has taken an opportunity of examining the gall bladder and the appendix and portions of the intestines, as I understood him. In doing conservative work upon the tubes and ovaries as a rule your incision is very small, and I know that I have been unable to palpate or make out the gall bladder or appendix with my fingers with a small opening low down. While I do not mean to say that an opening sufficiently large to bring into play the tactile sense to make out these organs, might not be necessary, still I maintain that any further enlargement of the incision without definite reasons would do harm.

Then, another thing we hold up as a bugbear,

is the movement of the bowels. In a simple operation on the adnexa where you are able to cover over the incised portion of the peritoneum and have a clean outlet, what danger is there of adhesions? Why should we worry about the bowels being moved quickly? A saline cathartic 24 hours afterwards in a case of that kind is sufficient; but I do maintain that if you recognize before operation, that you are going to meet with adhesions, where a large mass is removed and where you do find adhesions, then concern is to be given to the clearing of the intestinal tract.

Leaving normal salt solution in the abdominal cavity is simply a matter of custom with us all. I confine myself to thoroughly washing out the cavity with sometimes gallons of salt solution, if there has been considerable extravasation of supposedly septic material. Let it be aseptic or septic, I always feel safer in washing it out.

DR. C. JEWETT: I was unfortunate in not hearing the paper, but have caught some of the points in the discussion. Recently I had occasion to look up the records of something more than 60 cases in which I had done conservative operations on ovaries or tubes or both. As most of them were hospital cases I could trace the after history in but few. One or two had borne children since the operation, and as many more were expecting childbirth.

In one case a dermoid cyst and a portion of the other ovary were removed. Within a little more than a year the remaining ovary had reached the size of a hen's egg, from cystic disease, and was very painful, requiring removal.

One ovary was left after a supravaginal hysterectomy for myoma in a comparatively young woman. Twelve months later the remaining ovary was found many times enlarged and painful and was ablated *per vaginam*.

In another case, in which a portion of the ovary was left, the remaining fragment has grown to nearly two inches in diameter.

We are rarely justified, I believe, in unsexing a young woman. As much as possible of a diseased ovary should be saved in such cases, as a rule, even at the risk of subsequent operation.

Regarding the question of referred pain. A case in point is that of a woman upon whom I did a hysterectomy in a condition of profound anemia. The appendix, which was buried in extensive adhesions, was not removed for the reason that the woman was in too bad condition. After a month or two she complained of very troublesome pain in the region of the left kidney. This pain was distinctly aggravated by pressure

over the appendix. The abdomen was reopened and the appendix taken out. The patient left the hospital in good condition, free from pain and has had no trouble since.

With regard to the removal of the apparently normal appendix, it is my practice never to leave it when the abdomen is open for another purpose, if the woman's condition is good. It is a useless and frequently a dangerous organ, even though not obviously diseased.

In a recent paper, Peterson reported the microscopic findings in a considerable number of appendices, removed during abdominal section for other purposes. The report is of interest in connection with the present discussion.

To the question, "What constitutes pathological mobility of the kidney?" my answer would be, "Mobility that causes symptoms."

My experience with the non-operative treatment has not been like that of Dr. Baldwin. A light and well-fitting abdominal supporter, properly used, has given great satisfaction. It should be impressed upon the patient that the supporter should be applied in the morning, in the reclining position. After partially tightening, both hands should be slipped down under it, the abdominal wall drawn well up and the straps then be tightened firmly.

It should be remembered that the essential cause of the ptosis of the kidney is relaxed abdominal muscles, and that it is usually accompanied with ptosis of other abdominal organs. In a timely paper, Taylor has recently called attention to the fact that artificial supports are wrong, physiologically. A more rational treatment is one which aims to restore the lost tone of the abdominal muscles. Dr. Taylor marks out a course of physical training for this purpose.

With regard to the use of saline solutions in the abdomen, better results as a rule are obtained without it. Thirst is better relieved by requiring the patient to drink water freely, immediately before and after operation, and by a rectal injection of a quart of normal salt solution before she leaves the table. Flushing the peritoneum as a routine measure is a mistake. Mere local cleansing, with final dry sponging, gives better recoveries. For cleansing infected areas I frequently use, in the peritoneum, salt solution containing formalin. 1 to 500.

DR. J. O. POLAK: In regard to Dr. Chase's criticism, that I had not made clear the indications for certain operations on the ovary, I will but call his attention to the statement in my paper, "When the ovary is the seat of a cyst of moderate

size, it is amenable to successful resection. On the other hand, when there is multiple cystic degeneration, particularly when this cystic degeneration is near the hilum, oöphrectomy is better." These are the guides which I have tried to follow in selecting cases for resection. In my early experience I made errors of judgment in not knowing how much ovary to leave or what ovary had these cysts in the hilum.

In regard to the appendix, I remove the appendix when the right adnexa are removed. I want it understood that it is not my custom to remove the normal appendix in every celiotomy, yet I do believe that the lesson taught by several recent instances will cause me to do so wherever the time permits of such a procedure. Within the last three months I have had three cases that have developed appendicular symptoms since operation on the adnexa, where the appendix at the time of the operation was not removed, because it was found to be normal. In each case the appendix is probably going through "normal involution." There is tenderness over the appendix at the present time.

I saw a case that had been operated on at the Kings County Hospital. She came to the clinic at the L. I. College Hospital for the relief of a right sided pain. She was very thin, her pelvis was absolutely clear, and the only point of tenderness was over the appendix, which could be readily palpated.

I have put down in my paper, that when the appendix was adherent, constricted, sacculated or contains concretions, and also in right tubo-ovarian operations, it should be removed, especially in the latter cases because the circulatory anastomosis is disturbed, and something happens to that appendix in some of these cases.

The movable kidney with the gastropexia and enteroptosis is the one that, as a rule, produces the renal symptoms. An abdominal binder in these cases has given a great deal of relief, more so than any operative procedure. The production of symptoms, I would say, would be the indication for the cure of the mobility. You will occasionally see a kidney but slightly movable, that will cause more trouble than another kidney down at the brim of the pelvis. One will have to decide in each case whether fixation is indicated or whether a binder should be employed.

Dr. Butler called attention to the removal of sacculated tubes. I believe that non-inflammatory sacculations justify resection.

In answer to Dr. Hyde's question, I would say that out of 21 cases reoperated on by me, there

were four in which resection of the ovary had been done and the ovary was subsequently removed for cystic disease. I have given the results of 60 cases out of 161—the only ones I have followed. I have called attention to the reasons of my failures and the indications for conservative work and so rest my case.

Dr. F. J. SHOOP: I had intended to say something about the appendix, but I was waiting for Dr. Polak to give his explanation of the reason for removing it, and I thought in the three cases he mentioned, after having removed the diseased adnexa, possibly he carried some infection into the other place, and may, in that way, after manipulating the appendix, have infected it. I think we should not remove a healthy appendix any more than we should a healthy gall bladder or spleen, unless it be adherent or an adhesion connects it with the mass removed.

Dr. J. O. POLAK: I should have answered Dr. MacEvitt's question. I have been accustomed to make an incision large enough to permit my hand to pass through the wound, so as to palpate the abdominal contents. If the appendix is adherent and I have to pull it out; I remove it. If it is not adherent it will flop over and will come into view, and I am sure I will not do any damage to it.

Dr. J. R. TAYLOR: It has been stated that in cases where an examination of the appendix led one to believe that it was normal, it should be left alone. I personally believe the appendix should be removed whether normal or not. I have recently seen two cases where the appendix seemed to be perfectly normal, but where after removing as a matter of routine and making sections of them, I found the lumen of the appendix entirely absent. They were practically nothing but foreign bodies lying in the abdomen. I have no doubt many supposed normal appendices are in that condition.

In a work by Huntington of New York on the anatomy of the peritoneum in the abdomen and pelvis, you will find an enormous amount of material in regard to the appendix in man and the lower animals, and he states that while the appendix is a very useful organ in the herbivora, in the carnivora it is useless. I think the statistics of 35 to 40 per cent. entirely too low to represent man's liability to the disease. The amount of pain bears little relation to the amount of pathological change present. In my own case, I suffered intense pain and after its removal examination disclosed no bacterial invasion but there were three small ulcers on the mucosa.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed BROOKLYN MEDICAL JOURNAL, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, APRIL, 1903.

AN OBJECT LESSON IN SANITATION.

THE education of the public on sanitary subjects must needs always be a deliberate process.

Many cities and towns situated similarly to Ithaca are doubtless at present congratulating themselves that they are not as the Ithacans; but Ithaca in the course of a few months will be provided with filtering plants of the most approved and effective sort, and perhaps provision will then also have been made there for an improved method of sewage disposal. How many cities and towns with incomplete facilities for water supply and sewage disposal like those at present existing at Ithaca will have learned their lessons from their sister city? It does not require the prophetic instinct to foretell a repetition of typhoid epidemics elsewhere in the country. Epidemics such as that now occurring in Ithaca, cost in dollars alone, a loss far greater than the sum of such sanitary plants as will be subsequently installed and such measures as will be employed, after the epidemics have occurred, but which might better have been installed and employed previous to the epidemic.

Typhoid fever epidemics have occurred before. They will occur again; but, it is to be hoped, with decreasing frequency, as popular education in hygienic subjects reaches a higher and higher mark in the minds of the people. They will cease only when political demagogues with selfish interests are replaced by executive heads of departments with intelligent zeal and conscientious responsibility concerning those whose health is dependent on their initiative.

To the physicians of "college towns" the epidemic at Ithaca may also be an object lesson. "Loyalty to the college" may demand the exercise of discretion in reporting cases of which the diagnosis of typhoid fever is questionable; but cases of actual typhoid should be reported as

such. True loyalty would prevent the creation of needlessly distressing alarm, but not in hiding it, if real cause for alarm exists.

In the hands of a diplomatic doctor, might not the threat of referring all questionable cases to the typhoid list, in statistical reports, prove a valuable weapon with which to threaten recalcitrant officials. The most recent developments make it seem certain that just this attitude might have been assumed by the physicians at Ithaca a year ago.

BROOKLYN'S WATER SUPPLY.

THE water supply of Brooklyn receives frequent chemical testing; that is, water from the various sources of the city's supply is submitted to the official chemist who examines it for organic materials, the mineral solids, and microscopically for the *bacillus coli communis* and for odor-producing organisms. While Brooklyn's death rate from typhoid is low, compared with most American cities, it is rather high in comparison with many cities of Europe.

While the state of Brooklyn's water supply as indicated by typhoid fever statistics, is not alarming, neither can we find in it cause for congratulation. The fact is, that the mortality from this cause has been on the increase for the past few years. One may attribute this increase to any one of a number of specific causes. The Spanish-American war which brought Camp Black to our doors is a cause frequently cited. Of greater, because of its continuing and increasing, importance is the rapidity with which population is growing in the immediate vicinity at all of the various sources from which Brooklyn's water supply is derived. We have in mind a section of Brooklyn which is supplied by water derived from a system of driven wells. These wells are situated in a spot about two miles from tide water in what was formerly the course of a small stream. A few years ago this spot was sheltered by a strip of woodland and no houses were built about it. Now, houses of a suburban sort crowd it closely, standing within a stone's throw of the pumping station, on either side. It will, doubtless, be some time yet before the soil about it becomes sufficiently saturated with organic matter to fail in its work of filtering the water which percolates from the surface into the wells. There are many conditions obtaining in relation to this particular water supply which would lend itself easily to an epidemic of typhoid.

The dangers are greater in the case of an open pond or reservoir, used as a place of water stor-

age for the city's consumption, and near which houses are allowed to be built.

The present is the time to apply preventive treatment.

THE AUXILIARY LIBRARY ASSOCIATION.

THE initial meeting of the Medical Library Association was held at the Library Building, March 28.

The object of the Association is primarily to provide a ready fund for the regular expenses, such as adding to the files of periodicals lately acquired, the purchase of books and the furnishing of an emergency fund for the immediate and pressing needs of the rapidly growing Library.

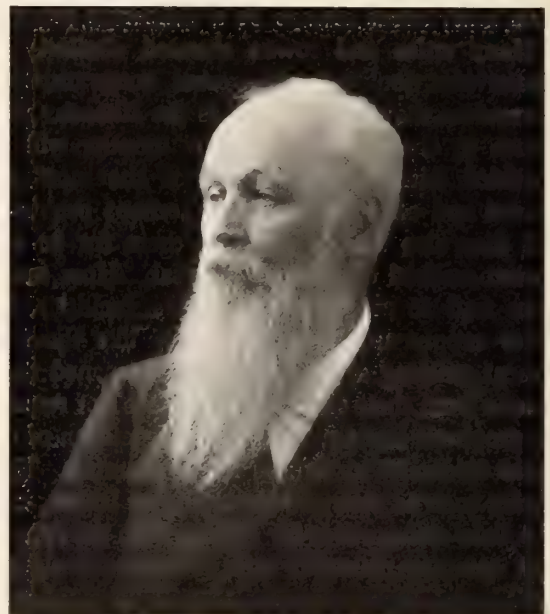
An annual report will be published, containing the work of the Association and a list of its members. The dues are moderate, and so many have already become interested in the excellence of its aims, that no doubt exists but that it will have a membership sufficient to render its success assured. The work it will accomplish will be quickly perceptible in the completion of files and the additions made to valuable books already on the shelves, so that its value as a working library will be made more productive than is at present possible.

RESOLUTION ON THE DEATH OF DR. JOSEPH E. CLARK, BY THE MEDICAL STAFF OF ST. PETER'S HOSPITAL.

At a meeting of the medical staff of St. Peter's Hospital held Feb. 2, the undersigned committee were appointed to draft a minute on the death of the late president of the medical board, Dr. Joseph E. Clark. This event, occasioned by an attack of pneumonia, occurred on Jan. 19, at St. Peter's Hospital. His associates on the staff of the hospital take this opportunity of expressing their sincere sorrow on the loss to them of one of its members who, during his long connection with the hospital—covering a period of more than 27 years—has shown a warm interest in his patients, and an unusual devotion to their welfare; a courteous and kindly spirit in all his relations to the staff, and a thoughtful care of every interest that could add to the usefulness of the hospital in ministering to the needs of the sick poor. At the completion of his 25th year of service, the Sisters of St. Francis, who administer the affairs of the hospital with such efficient skill gave to Dr. Clark in appreciation of his long, faithful and skilful service to the hos-

pital a supper at which every member of the visiting staff was present and bore testimony to Dr. Clark's worth. The Sisters also presented him on that occasion with a silver wreath of twenty-five oak leaves as a souvenir of his long and faithful service to the hospital.

Joseph Edwin Clark, M.D., a resident of Brooklyn for more than fifty years, was born April 4, 1823, at Petersburg, Rensselaer county, N. Y., and was the youngest son of Benjamin and Mary (Maxson) Clark, of Rhode Island. His ancestor, Joseph Clark, a brother of the noted Dr. John Clark, a prominent man in the early days of the colony, came from Suffolk county, England, and was one of the company which settled at Newport, R. I., in 1638. Joseph



DR. JOSEPH E. CLARK.*

E. Clark was graduated from the Rensselaer Polytechnic Institute at Troy, N. Y., in 1845, and after attending lectures at the medical school at Pittsfield, Mass., he was graduated from the College of Physicians and Surgeons in New York City in 1849. After a brief residence at Oriskany, N. Y., he removed to Brooklyn in 1851, and resided for many years on Clinton street, between Harrison and Degraw streets. During the Civil War he was appointed by Governor Seymour on the Voluntary Aid Corps of Surgeons, organized for service in the army in cases of emergency. For a few years he was connected with the Long Island College Hospital. In 1875 he was invited to co-operate in the reorganization of the medi-

* By courtesy of Dr. Schroeder.

cal staff of St. Peter's Hospital, and was continuously connected with that institution as visiting physician to the time of his death, for many years being the president of the medical board. He was a man of a very quiet and retiring disposition, but exceedingly devoted and faithful in his attention to those needing his professional care, and his fatal illness was brought on by undue exposure to the inclemency of the weather while seeking to minister to some one needing his services. He was twice married. His first wife was Frances Perry, daughter of Abner Perry, of Lenox, Mass., and New Lebanon, N. Y.; his second wife was Juliet (Sherwood) Roosevelt, daughter of Justus Sherwood, M.D., of Southport, Conn., and widow of Marcus B. Roosevelt. He is survived by his two children by his first wife: Edwin P. Clark, a lawyer, superintendent of records of the Title Guarantee & Trust Company, and Mary Frances Roosevelt, wife of the Rev. Sherwood Roosevelt, rector of St. Peter's Church, Milford, Conn. Dr. Clark was a member of the Practitioners' Club, of the Medical Society of the County of Kings, of the Brooklyn Institute and of the American Association for the Advancement of Science. Since 1853 he had been a member of and regular attendant at the Strong Place Baptist Church, where the funeral services were conducted on Thursday, Jan. 22, 1903, at 2 P. M. The interment was in Greenwood Cemetery.

J. D. RUSHMORE,
F. W. WUNDERLICH,
T. P. CORBALLY.

Committee.

ARMY MEDICAL CORPS EXAMINATIONS.

Examinations of candidates for appointment in the medical corps of the army will be resumed by the Army Medical Board in Washington, D. C., on April 20 next. Classes will be invited to appear on April 20, and each Monday thereafter so long as is necessary. Full information as to method of application, nature and scope of examination, etc., will be furnished by the Surgeon-General's office upon request of those interested. Applicants from civil life are restricted in age to 29 years, and hospital training or professional experience in private practice is expected of all candidates. There are at present 35 vacancies to be filled.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the Profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor, before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

Dr. Charles Louis Fincke will remove from his present address, 135 Clinton street, to 166 Clinton street.

Dr. George K. Meynen, of Jamaica, has been appointed Surgeon of the Long Island Railroad Company, in place of the late Dr. Valentine.

Dr. Archibald Murray, of 59 Remsen street, announces his intention to retire from the general practice of medicine and devote himself exclusively to pathological diagnosis, analyses, and microscopical anatomy in addition to his research work as the holder of the Hoagland fellowship.

Glentworth R. Butler, A.M., M.D., of 229 Gates avenue, author of the well-known and recently published "Diagnostics of Internal Medicine," has been honored with a life fellowship in the London Society of Science, Letters and Art. The JOURNAL extends its congratulations to Dr. Butler on this well-merited honor.

Owing to the fact that the JOURNAL had gone to press, news of the death of Dr. Ashley A. Webber was received too late for publication in the March issue. Dr. Webber, who was the champion revolver shot of the world, died at his home suddenly of Bright's disease. He practised almost exclusively in the Williamsburgh section and was for a number of years connected with the Eastern District Hospital staff.

We also chronicle with regret the death of Dr. John J. Conway. He died after a week's illness from pneumonia and complications at his late residence, 482 Classon avenue.

We are pleased to note the complete recovery of Drs. Joel W. Hyde, Ernest Palmer, and George McNaughton from bad attacks of grippe. Dr. Palmer has recently been in Clayton, N. Y., recuperating and has returned much improved in health.

The friends of Dr. Louis N. Lanehart, of Hempstead, L. I., and president of the Queens

County Medical Society, were much surprised to hear that early in March he had an operation for acute cholecystitis. Latest reports indicate a complete recovery. Dr. Lanehart was taken to the Mineola Hospital, of which he is himself one of the surgeons. The JOURNAL is pleased to note that reports of the doctor's convalescence are most encouraging, and extends wishes for a speedy return to health.

Manila dispatches convey news of the death in the province of Neuva Ceres, Philippine Islands, of Dr. Franklin M. Kemp (L. I. C. H., '93), assistant surgeon with the rank of Captain in the U. S. A. Dr. Kemp entered the army in 1896 as first lieutenant and died February 23, 1903, of heart disease.

Various amendments have been made to the bill for a registration and examination of nurses which was reported favorably by the Judiciary Committee of the Senate. In the first place the bill provided that the examining board should be composed of five nurses selected from ten nominees of the State Nurses' Association. This provision is eliminated and the choice of the board is left to the Governor. Another amendment gives to the State association the right to enforce the law and to prosecute any person who poses as a trained or registered nurse who is not duly certified or has been granted a diploma from the State board. Any violation of the proposed law is a misdemeanor and punishable as such. The bill further provides that the nurses shall not have the right to practise medicine and the State board shall not have the power to authorize them to practise medicine.

Dr. Truman W. Brophy, of Chicago, the well-known specialist in oral surgery, whose operation for cleft palate has made him famous here and abroad, remained a few days in Brooklyn recently, *en route* to the International Medical Congress to be held at Madrid, April 23, 1903. Dr. Brophy was appointed American delegate to the Congress by President Roosevelt. While in Brooklyn Dr. Brophy operated almost every afternoon at the Bushwick Central Hospital on patients with cleft palate. He was recently appointed consulting surgeon to this hospital, which fact gave rise to the report that Dr. Brophy intended making Brooklyn his permanent home. Dr. Brophy personally denies any such intention. The Chicago press is even more emphatic. Dr. Brophy is Dean of the Chicago College of Dental Surgery, which he founded, and Professor of Oral Surgery at the Rush Medical College.

While in Madrid, he will examine the nephew of the Queen Regent at the request of the royal physician and perhaps, may operate. Many of the members of the Kings County Medical Society had an opportunity to personally meet Dr. Brophy in January last and hear him discourse interestingly on his specialty.

The death of Dr. Theodore Gaillard Thomas removes from the medical profession one of the best known obstetricians and gynecologists of this country. Dr. Thomas was southern born and came to New York a poor young man. He left shortly afterwards with Cornelius Agnew, who later became well known as an ophthalmologist, for a trip abroad. Young Agnew was as financially embarrassed as Thomas. For a year and a half both traveled all over Europe studying hospital methods and foreign ideas. Returning Dr. Thomas established himself as a specialist in woman's diseases and in 1863 was appointed full professor of obstetrics in the College of Physicians and Surgeons. He held numerous honorary positions as attending physician and surgeon to many well-known New York hospitals, especially the Woman's Hospital which at that time enjoyed a unique and individual position as the only hospital for women. Dr. Thomas was the author of "A Practical Treatise on Diseases of Women," which was translated into five foreign languages and had seven editions. Dr. Thomas was a man of most pronounced personality, pleasing address, fluent talker, and a born teacher. He died suddenly in his seventy-second year at Thomasville, Ga., his winter home.

Dr. James McCabe (L. I. C. H., '95), of William street, a member of New York State Senate, has introduced into the Senate a "sweeping" ice bill which prohibits the cutting of ice on the Hudson River between Waterford and Cocksackie for domestic use. It also prevents the sale of ice cut on the Hudson River near a large city. He has in mind the contamination of ice by the sewage of Troy and Albany. An outline of the provisions of the bill is as follows: It makes it unlawful for any person to cut or sell for domestic purposes any ice formed by natural processes of nature on the Hudson River between Waterford and Cocksackie or within 3,000 feet below any town of 10,000 inhabitants situated on the river. All persons, firms, corporations selling ice in New York City shall be required to obtain a license from the Commissioner of Health for each wagon or cart used by them. All dealers in ice or carriers shall have plainly painted on both

sides of the wagon used for carying ice, in black letters not less than 10 inches high, the words "Natural Ice," or "Manufactured Ice," as the case may be, and in addition the name and business address of the owner. It shall be unlawful to sell any natural ice from any wagon marked "Manufactured Ice," or to sell for domestic use any natural ice taken from the Hudson River between the points mentioned. The Board of Estimate is authorized to appoint officers to enforce the law. Other important and sweeping provisions of the bill are that all boats delivering ice in New York City shall have painted on both sides of such boats the word "Ice" and the name of the river from which the contents of the boat is taken. Before the ice can be sold the owner must make an accurate report in writing to the health commission showing the number of tons of ice on such boat, the name of the person or firm to whom the ice is sold, the name of the river and the exact locality from which it is taken. Any person who shall sell or give away river ice representing it to be lawful or manufactured ice, shall be deemed guilty of a misdemeanor and punished on conviction for the first offense by a fine of not more than \$50 or imprisonment of not more than 30 days. For subsequent offenses the fine is to be increased to not more than \$100 and imprisonment for 60 days. Provision is made that the police must assist in enforcing the law.

Dr. J. H. Raymond, Borough Health Commissioner, is anxious to have the physicians of Brooklyn understand the requirements of the Sanitary Code with reference to the reporting of cases of pulmonary tuberculosis. It seems to be quite a general impression that if a physician is called upon to treat a case of pulmonary tuberculosis, and he finds that the case has been under the care and treatment of another physician previously, he is not required by the Sanitary Code to report the case. The result of this is that many cases are not reported at all to the Health Department; inasmuch as if the physician first called neglects to report the case, and those who see the case subsequently do not report it for the reason that they think the first physician reported it, the knowledge of the case never reaches the Health Department. Section 153 of the Sanitary Code makes it the duty of every physician of the Borough to report to the Sanitary Bureau in writing the name, age, sex, occupation and address of every person having pulmonary tuberculosis who has been attended by

him or who has come under his observation. This report is to be made within one week.

W. B. Saunders & Company, the well-known medical book publishers, desire to announce to the profession that they have established a branch of their business in New York. For this purpose they have secured a suite of rooms in the Fuller Building, centrally located and easily accessible from all parts of the city. Dr. Reed B. Granger, for many years managing editor of the *New York Medical Journal*, together with a representative who is thoroughly familiar with the methods of the Philadelphia house, will be connected with this new branch; and Mr. W. B. Saunders personally will divide his time between New York and Philadelphia.

The next meeting of the American Congress of Tuberculosis will be held at Saint Louis, Mo., July 18 to 23, 1904. The work of organization is being pushed as rapidly as possible. To facilitate this the Congress has been granted a charter, thus making it a legal body and by this means greatly facilitating the work of reorganization on the lines mapped out at the last meeting, when it was decided that a radical reorganization should be completed by the officers elected. For the purpose of completing the organization of the International or World's Congress on tuberculosis on strictly ethical lines, many well-known physicians have been asked to serve on an Advisory Committee to assist the council in perfecting plans for the meeting. All have accepted and a large number will be added to this list.

Dr. Frank T. Burke announces the removal of his office to 11 Halsey Street.

Dr. Henry H. Morton will move from 40 to 32 Schermerhorn Street.

Dr. Henry A. Alderton expects to reside permanently in Hempstead hereafter, retaining his office at his present address, 142 Clinton Street. Dr. Walter Truslow will also have his office at this address.

Surgeon E. S. Bogert, Jr., U. S. N., formerly of Brooklyn, has been ordered to the Naval Hospital at Philadelphia.

Captain and Assistant-Surgeon Jerome B. Thomas, Jr., has been given two months' leave of absence. He will leave Manila next month with his wife and expects to be in Brooklyn before the first of June.

Dr. Luzerne Coville, formerly of Brooklyn, has tendered his resignation as a member of the Fac-

ulty of the Medical College of Cornell University. Dr. Coville resigned because of expressed differences between himself and the Infirmary Committee regarding the management of the Infirmary.

Adjutant-General Henry, through Governor Odell, has granted a brevet to Colonel George R. Fowler, M.D., of Brooklyn. Dr. Fowler was brevetted Brigadier-General for meritorious service of more than twenty-five years.

The bill for the abolishing of the Coroners of New York City has passed the Senate by a fair sized majority, five Democrats voting with the Republicans, among them Senator James H. McCabe, M.D. (L. I. C. H., '95). There seems to be a favorable impression that the bill will have no difficulty in passing the Assembly. The bill substitutes a Chief Medical Examiner and six Medical Examiners, and is said to effect a large saving to the city in the matter of salaries and other expenses.

Assemblyman Conkling has introduced a bill to transfer the ambulance service of the city to the care of the Commissioner of Public Charities. The bill was prepared by Assistant Corporation Counsel R. B. Greenwood, Jr., at the request of Dr. Joseph H. Raymond, Assistant Sanitary Superintendent of this borough. Dr. Raymond believes that the work of the ambulance service is more in line with the Charities Department than with that of the Health, since it attends only to emergency cases and removals. It will be remembered that the present ambulance service in this borough was organized by Dr. Raymond twenty years ago, during his first administration as Health Commissioner of Brooklyn.

MISCELLANY.

Butlin (*British Medical Journal*, February 14, 1903) gives the following conclusions as regards cancer in the city of Dundee:

1. That the death-rate from cancer as a whole during the twenty-five years under review has more than doubled, having increased from 7.27 of 16.92 per 10,000 of the population over the age of 20.

2. That this increase is greatest at ages over 45; is common to both sexes, but more marked in the male sex, though the actual mortality is higher among females.

3. That in females this is chiefly due to an in-

crease in malignant affections of the abdominal viscera.

4. That uterine cancer and cancer of the breast in females have increased, though not in any marked degree.

5. That cancer of the rectum also shows a slight increase in both sexes.

6. That in males the highest mortality is from cancer of the abdominal viscera.

7. That in males cancer of the mouth and upper digestive tract has also greatly increased.

8. That, therefore, cancer of regions which may be described as "accessible" has increased, as well as that of parts which are not so accessible and where the diagnosis is more difficult, but the increase in the latter is out of all proportion to that in the former class.

9. That during the same period there has been a great improvement both in clinical and pathological diagnosis, as well as in death certification, and consequently a considerable diminution in returns from such indefinite conditions as "old age" and "disease" of the various organs (without any specification of its nature).

10. That this must to a considerable extent have helped to swell the returns of death from "cancer."

The writer also states that he is of opinion that this is by no means sufficient to account for the great increase in cancer mortality, and that this increase is a real and substantial one, though by no means so great or so alarming as the general public believe or as a superficial glance at statistics would seem to indicate. These conclusions do not altogether coincide with those expressed by some other investigators dealing with the cancer mortality of whole countries (including both urban and rural districts) where the statistics are obtainable only from the Registrar-General's reports.

PROGRESS IN DERMATOLOGY.

ABSTRACTS BY J. M. WINFIELD, M.D.

Henry C. Anthony, Chicago (*The Journal of the American Medical Association*, January 10, 1903), in an article entitled "The Relation of Lupus Erythematosus to Tuberculosis," after reviewing the various views and theories, concludes as follows:

1. That discoid lupus erythematosus is a granuloma which has no relation to tuberculosis, but which may be accompanied by a general eruption.

2. That tuberculosis may produce symptomatic lupus erythematosus, usually with disseminated atrophic plaques.

3. That what may be shown by statistics regarding the relation of lupus erythematosus to tuberculosis, depends upon what is understood as evidence of tuberculosis and also on what is included in lupus erythematosus.

LUPUS ERYTHEMATOSUS; A STUDY OF THE DISEASE.

Wilfred B. Ward, M.D., M.R.C.P. (*British Journal of Dermatology*, December, 1902). After a very exhaustive review of the subject as seen from the study of thirty cases, the author concludes that "First, that lupus erythematosus is not a distinct pathologic entity, but merely one instance of a common process frequently met with in a certain class of individuals. Second, that the essential factor, except in rare instances, is a pernicious edema hard to remove, and apt to produce degenerative and atrophic changes. Third, that this edema is due to paralysis and dilatation of the small blood vessels, ending eventually, if not treated, in their degeneration and destruction. Fourth, that this edema and vascular degeneration depends indirectly, on a feeble circulation leading to a state of malnutrition of the vessels, walls, etc., and directly, on exposure to heat and cold. Presence in the skin of various efflorescences due to poisons, toxins, microbic activity, etc. Fifth, that the vascular degeneration and atrophy may be directly induced by certain superficial types of lupus vulgaris and be predisposed to by a tubercular inheritance or by acquired tuberculosis, but that the lesions essential to the disease are in no sense tubercular."

VALUE OF THE ROENTGEN RAYS IN CANCER.

A. R. Robinson, M.D. (*The Canadian Journal of Medicine and Surgery*, December, 1902). After a conservative and characteristically careful review of the subject he concludes as follows: "The Roentgen Ray is a very valuable addition to our armamentarium for the treatment of cancer.

Some cases of advanced epithelioma are incurable except by the rays.

Many of the cases cured and regarded as inoperable by other means could have been quickly cured in an early stage of the disease.

The majority of the cases so far reported as

cured have been cases that could have been cured much more quickly by the knife or caustics, especially by the latter.

In cutaneous cancer the scar is sometimes better after the ray treatment than after the use of caustics, but for the majority of cases caustics are preferable, as their action is definite and there is a great saving of time to the patient.

In many cases of cutaneous cancer the ray is a valuable agent in combination with other methods, and when the disease is situated around the important blood vessels it is the only proper agent to employ, except in some cases on the extremities, where amputation would be advisable.

All cases of carcinoma of the breast, except those seen in a very early stage, should be treated by the rays before resorting to the knife. The rays should also be used in all inoperable cases and in all cases after amputation has taken place.

According to our present knowledge, the X-ray treatment is not curative in internal cancer of any part of the body, mouth, larynx, stomach, uterus, etc.

To obtain the best results there must be no fault in the technique of the operation, in order to avoid a serious burn and to get the desired action on the cancer tissue."

THE VALUE OF RADIO-THERAPY IN CUTANEOUS AND OTHER CANCERS.

In a paper read before the American Dermatological Association, September, 1902, Dr. Charles W. Allan (*The Journal of Cutaneous Diseases*), reports the results obtained in forty-seven cases of cancer. Ten were breast cases. One, rectal; one, uterine; one, glands and tissues of the neck; three, sarcoma, and one supposed to be sarcoma; thirty were dermatological cancers; two, epithelioma of the chin; nine of the nose or nose and cheek; three, multiple; one being in a subject of xeroderma pigmentosum; five were upon the cheek near the eye; four of the lip; two of the arm. The results were as follows:

Ending fatally	5
Discharged cured	25
Ceased treatment improved	3
Ceased treatment unimproved	5
Improved and under treatment	9
Total	47

REPORT OF A CASE OF MUCOSIS FUNGOIDES TREATED BY X-RAY.

W. Allan Jamison, M.D., F.R.C.P.E. (*British Journal of Dermatology*, January, 1903). This

disease has heretofore resisted all forms of treatment and nothing has served to stop the fatal ending. The case in which Dr. Jamison used the ray was typical, and after a number of exposures the tumors melted away and the thickened eczematous-like patches disappeared; the itching ceased entirely. Still, though the ray cured the existing lesions, it did not prevent new ones from cropping up, and he states that all eczematous eruptions which appear suspicious and that might lead the dermatologist to think it to be the pre-mycotic stage of this disease, should be subjected to the X-ray treatment.

THE X-RAY IN CANCER AND SKIN DISEASE.

Dr. Charles W. Allen (*Journal of the American Medical Association*, February 21, 1903) states in an article entitled "The X-ray in Cancer and Skin Disease": Of all the recent advances in the treatment of skin disease none has attracted more interest than that of photo-therapy. Finsen's method and radio-therapy can almost be considered as introducing a new era in the therapy of many affections. After discussing his method of employing the X-ray and reporting the results of thirty-five cases he says: "That it is his belief while the X-ray, as a therapeutic agent, shows nothing especially brilliant it bids fair to be of incalculable benefit in many incurable diseases, and adds that care must be exercised in its employment for it is an element of power which may be exerted for evil as well as good. Severe cancer should be treated with careful oversight and not left to electricians or non-medical workers; symptoms may arise suddenly which require modification or entire withdrawal of the ray, and careful medical treatment. This can only be given and judged by physicians who have knowledge of radio-therapy."

In the discussion of Dr. Allen's paper, Dr. Baer said he hardly thought there was much in the theory of metastasis, while some patients take less kindly to treatment than others, he had never seen it cause metastasis when cancer forms in the breast opposite one that is being treated by X-ray because the germs were there before treatment had been instituted. As for it causing uremia (referring to Dr. Skinner's remarks) or auto-intoxication, he thought it possible that the ray might cause an increased discharge of toxic material which might set up uremic poison.

EPICARIN AS AN ANTIPRURITIC.

Max Reichman, M.D. (*American Journal of*

Dermatology). After quoting from a report on this new drug by the late Prof. Kaposi, he reports his personal experience with it as an antipruritic. He found it to be of great service in scabs, the itching subsiding after the first application of 10 per cent. ointment. The result was the same in cases of lichen ruber planus, urticaria, ring worm and eczema. From his report it would seem that we had here a very valuable antipruritic remedy.

OPEN AIR TREATMENT OF SYPHILIS.

Dr. E. M. Douty (*Boston Medical and Surgical Journal*, January 29, 1903), strongly advocates the open air treatment of syphilis. After drawing the parallel between syphilis and tuberculosis he relates his experience in the treatment of syphilis and points out the fact that many syphilitics have consumption; as high as 50 per cent. He recommends that a syphilitic should devote at least one year to an out-door life and better still, two years. If this plan of treatment could be instituted he believes that the percentage of syphilitic-phthisical would be greatly reduced. He expresses the hope that the open air treatment for early syphilis may become usual, and that the National Association against tuberculosis may advocate it.

PROGRESS IN OTOTOLOGY.

ABSTRACTS BY J. E. SHEPPARD, M.D., AND S. H. LUTZ, M.D.

ON THE VALUE OF ELECTROLYSIS IN THE EUSTACHIAN TUBE.

Pierce, Chicago. In a review of twenty cases, the author came to the following conclusions, in *Archives of Otology*:

1. In otosclerotic disease, electrolysis is useless.
2. In the great majority of cases of catarrhal disease it has no advantages over other methods of treatment.
3. In a certain few cases where there is probably a soft exudate near the isthmus it may be regarded as of some value.

A CASE OF SARCOMA OF THE TEMPORAL BONE.

In the *Transactions of American Otological Society* for 1902 Dr. Kipp, of Newark, N. J., reports a case. The case was one of a boy about seven years old, who was operated on twice for seeming mastoid disease. The diagnosis by microscope confirmed the diagnosis made at second

operation, and the case terminated fatally in spite of operations and the use of the X-ray.

A CASE OF DIPHTHERITIC GANGRENE WITH DIPHTHERIA OF THE EAR.

Brunard, in *La Clinique*, reports a case of a four-year-old child sent to the hospital on account of diphtheria. Several injections of anti-diphtheritic serum gave little relief. Nine days after admission, free discharge of pus from left ear. Staphylococcus but no Klebs-Loeffler bacillus found. Two days later autopsy showed gangrene in pharynx, larynx, lungs, and necrosis in bony portion Eustachian tube.

CLINICAL STUDY OF COMPLICATIONS OF SUPPURATIVE MIDDLE EAR DISEASE.

C. Breyre, in an article in *La Presse Oto-Laryngology, Belge*, comes to the following conclusions: The extent of bone destruction from suppurative otitis media can be very great without noticeable external signs. Even when the cases with spontaneous external rupture seem to be progressing favorably there may be extension of the carious process toward or along the dura. Suppurative processes lasting a long time may cause death by marasmus.

THE USE OF OZONE IN MIDDLE EAR CATARRH.

Stoker, in the *London Lancet*, describes his use of ozone through the Eustachian catheter, sittings of three minutes three times a week in cases of dry middle ear catarrh. He describes four cases treated, all improved and the tinnitus soon disappeared. He fails to say how he treated the cases before using ozone, and there is nothing to show that the plain air douche would not possibly have given the same result.

STUDY OF THE COMPLICATIONS OF THE LYMPH CHANNELS IN SUPPURATIVE MIDDLE-EAR DISEASE.

E. Jürgens, in *La Presse Oto-Laryngology, Belge*, makes the following resumé of his work: Lymphangitis and lymphadenitis around the ear, neck or mouth, is frequently due to suppuration in the middle ear. The cause of this trouble is frequently due to the fact that an inflammatory process in the ear did not come to suppuration, or that the suppurative condition is over and the enlarged glands are the result of Nature's endeavor to restore the normal condition of the ear.

This is true more particularly in growing children.

In all conditions of enlarged peri-auricular glands the greatest care must be taken to examine carefully the ear of that side to determine whether the ear is the cause of enlarged glands or has been affected by them. When pressure over the mastoid causes pain, bear in mind every time that the pain may be due to glandular disturbance only, and not always to deeper trouble.

VERTIGO.

By Rudolph Panse, M.D., Dresden (*Zeitsch. f. Ohrenh.*, Band 41. Translated by Arnold Knapp for *Arch. of Otolology*, December, 1902).

This is an exhaustive and exhausting (!) article on dizziness, which is incapable of satisfactory abstraction, and, to be fully understood, must be carefully studied in its entirety. Vertigo of position is an erroneous conception of our relation in space, the impression of which is conveyed along three paths: by the eyes, through the organs of equilibrium in the labyrinth of the ear, and by the Kinesthetic sense, *i.e.*, the sensation of the skin, muscles, joints, and viscera. Centripetal stimuli pass along these three paths which unconsciously enable us to preserve the body equilibrium. Morbid stimuli may pass along these paths which, if they are sufficiently strong, may lead to a disturbed conception of our position in space—in other words, to vertigo.

1. As to the eyes: when we fix a definite object with our eyes we increase the convexity of the lens by the action of the ciliary muscle in order to obtain a definite picture on the retina. We are able to estimate the distance between the fixed object and our body by the necessary impulse to innervate this muscular activity. This activity suffices to judge of distance when seeing with one eye alone. When both eyes are used, a second muscular activity comes into play, *viz.*, the convergence of the ocular axes, which also enables us to estimate the distance of the object. If by a morbid stimulus the pupil is contracted or dilated, or the ocular axes converged, a false, even though unconscious, impression of distance or approach of space arises with ocular vertigo and nausea, unless this impression is corrected by other means. Hence, vertigo, often temporary and overcome by adaptation of the central parts to the changed conditions, is one of the first symptoms of ocular paralyses. No vertigo is caused by the typical chronic nystagmus of persons with diseased eyes.

The peculiar blood supply of the oculomotor

nerve nuclei is, according to Mendel, a likely cause for the production of ocular vertigo. He believes that every disturbance occurring in the central nervous system influences the ocular muscle apparatus, as being a small and non-resisting portion. It is clear that this must have its cause principally in the circulatory apparatus. There is no part of the brain whose blood supply is as poor as is that of the nuclei of the ocular muscles, and from this fact it is apparent that every circulatory disturbance has full effect on those muscles. In anemia of the brain following some loss of blood the first symptom is a blurring of the vision and vertigo. Similarly the circulation is altered when the cerebral vessels encounter changed physical conditions. If a weak person suddenly sits up in bed, the circulation becomes disturbed, and the patient experiences vertigo.

2. The second nerve-path by which we are instructed as regards the relation of our bodies in space is the vestibular branch of the eighth nerve. The terminal fibers end in the saccule of the vestibule and the semi-circular canals as a thick-meshed structure surrounding the hair-cells. These, supported by flask-shaped epithelial cells, are so arranged that their hairs project freely into the endolymphatic cavity. A cellular mass rests upon these cells, and at the region of the macula utriculi and sacculi contains crystals of lime. Changes in the position of the head cause pressure on, and dislocation of, these crystals; the nerves of the two end-stations are thereby stimulated, and sensation in regard to the position of the head is produced. The gelatinous substance in the maculae of the three ampullae projects directly into the cavity and produces an obstruction to the passage of the endolymph in these canals. This current is produced by the fact that the fluid, owing to its heavy consistency, does not directly follow the movements of the long canal and of the head, and is consequently displaced and pushed to the wall. This has the result that the gelatinous cupola and the hairs of the neural epithelium are elevated, and the nerves which surround the hair-cells are stimulated, and the sensation of movement is perceived. If the movement of the head and of the semi-circular canals continues somewhat longer, the power of inertness in this fluid is overcome by the adhesion to the walls, and the fluid gradually assumes the same velocity of rotation, and then experience no rotation. Should all movement be suddenly arrested, the endolymph continues its motion and forces the cupola and its hairs in the opposite direction. A sensation opposite to the original ro-

tation is brought about, although nothing of the kind is present. We are in error in regard to our relation in space, and vertigo (labyrinthine) is produced.

To produce motion of the endolymph it is necessary that the head be moved in the plane of the canals. We are instructed by the three different planes of the semi-circular canals, of which there are always two which are parallel, in regard to motions in three different directions.

According to v. Stein the disturbances of equilibrium in ear disease are characterized by the following points: 1. The disturbance is present with closed eyes in the absence of ataxia or paresthesia. 2. With open eyes the rapid movements never reach their normal promptness or correctness and are usually hesitating and slow. 3. The disturbances are present in certain positions and in certain directions. 4. They are not equally distributed to both lower extremities; *e.g.*, the patient can stand on the right leg but not on the left. 5. The disturbances of movement are polymorphous. 6. Rapid fatigue in motion, especially with closed eyes. A part of the so-called muscular sense is probably nothing else than unconscious sensation which continually emanates from the labyrinth to the muscles. 7. The reaction in the goniometer, the level of which is gradually made oblique. 8. Simultaneously existing diminished hearing and other aural troubles. 9. Tinnitus without diminished hearing. 10. Nasal affections. 11. Attacks of vertigo following lesions of the nerves or of the eyes. 12. A falling, the patient remains perfectly conscious though he may be at times slightly dazed.

3. *The Kinesthetic Sense.*—The third sense—that by which we are instructed as regards our position in space transmits the kinesthetic sense of the muscles, joints, and skin to the central organs. In any position of the body except the relaxed horizontal position, an exact determination of the opposing acting muscular activities is necessary, and even more so in moving in a straight line, in rotations of the body, in turnings and bendings of the trunk on stationary legs. The degree of the accompanying necessary innervating impulse instructs us about the position of our body and of its parts. To a much less degree this is answered by the changed pressure in the vessels and of the blood in the various bodily positions. Romberg's symptom has nothing in common with true ataxia, if one understands the latter to be a disturbance of co-ordination of Leigh movements. Morbid misconceptions are frequent if those tracts in the cord are disturbed along

which muscular sense is transmitted to the central organ. As reflex collaterals are given off from these tracts in the various levels of the spinal cord to the motor nerves, we are consequently able to diagnosticate the site of the disease by means of these reflexes. The muscular sense may be disturbed by disease of the sensory peripheral nerves, and the co-ordination, or regular combined action of certain muscular groups in a uniform function, may also be interfered with. In this peripheric sensory form of ataxia the centripetal influences reach the intact co-ordinating apparatus in an insufficient degree, and regulation of the innervation of the motor fibers suffers.

Next are considered "the equilibrium tracts in the medulla oblongata," "in the cerebellum," "in the mid-brain," and "in the cerebrum." As to those in the medulla, the following appears: In rare cases ataxia is present owing to the involvement of the restiform bodies, and the cerebellar lateral tract fibers, the posterior columns, and the fibers arising from the olive. Occasionally this is associated with vertigo, which may at times be so severe as to appear almost as forced movements. This is the first time that we encounter vertigo in following upward the sensory tracts. This is the first time we approach two of the sensory tracts which instruct us as to the relation of our body; namely, we have the sensations of the skin, muscles, and joints, and of the vestibularis, whose involvement from a morbid process is easily possible. Below this the kinesthetic sense alone was involved, and showed its disease objectively by ataxia.

In the cerebellum are concentrated the following sensory stimuli: The sensation of muscular sense passing along the posterior columns and the posterior column nucleus to the cerebellum, as well as the visceral sense, presumably transmitted by the cerebellar lateral tracts; the sensation of the vestibular nerve, and probably of the pupillary fibers. The cerebellum is functionally in close relation with co-ordination. It is probable that it is not directly influenced by motor tracts, but inasmuch as the varying sensory stimuli are brought together in it, a regulating influence is exercised in the innervation of the motor tracts. From its direct and indirect connection with the ganglion-cell systems of the brain, the cerebellum is enabled to control the continued activity of numerous muscles, which is a necessity for the maintenance of the equilibrium of the body.

The cerebellum must be regarded as a central

organ of the bodily equilibrium, while the olivary body, the semi-circular canals, and the central gray substance of the third ventricle represent peripheric organs, which serves as a region for certain centripetal impulses. They may be considered as the peripheric organs of equilibrium.

The sensory motor regions may replace the cerebellum to a certain extent. Thus their influence upon the preservation of the body equilibrium is assured. By disturbance in the region of the anterior cerebellar peduncle, the impressions of a lower order formed in the cerebellum about our position are erroneously transmitted to the cerebrum, and vertigo is thus felt. By injury of the cerebral fibers of the middle cerebellar peduncle, the influence of the cerebrum in the cerebellum is disturbed, and the result of this can also be perceived as vertigo. By influencing the low viscus tract up to the sensory motor zones, the voluntary realization of the centripetal sensations of position are prevented, and vertigo appears in the attempt at voluntary changes of position. Injury of the sensory lemniscus tracts up to the cerebral cortex leads, on account of the proximity of the pyramidal tracts, immediately to motor symptoms. Owing to the extended distribution of the sensory motor regions, an injury will cause erroneous conceptions about positions in space and general brain symptoms, especially loss of consciousness.

By all of these disturbances the unconscious cerebellar preservation of the equilibrium would not be prevented. On the other hand, circumstances which lead to general congestion of the brain, suddenly increasing the pressure within the cranial cavity, or in the case of a different position of the original trouble causing a complicating affliction of the cerebellum or of the sensory motor region, would also lead to vertigo.

The vertigo appearing in diseases of the cerebrum is associated with more or less complete loss of consciousness. The patient suddenly experiences blurring of sight. However, false impressions about his relations to surrounding space do not occur. These attacks of vertigo represent the mildest form of the apoplectic insult, and may appear in the most diverse cranial diseases (progressive paralysis, multiple sclerosis, hydrocephalus, tumors, etc.).

Hitzig differentiates between cerebral and cerebellar vertigo following tumors. Tumors which are accompanied by attacks of vertigo of an epileptiform character, with or without convulsions, are, with the greatest probability, to be looked for in the proximity of the motor region. The

attacks of vertigo of the other class are characterized by a general congestion of the brain. As these attacks usually appear with headache and vomiting, they presuppose the existence of a sudden general, increased, intra-cranial pressure.

The cerebellar forms are distinctly different from the central attacks. The symptom is here characterized by its unusual severity, by the frequency and duration of the attacks, which generally are also characterized by the presence of apparent movements in a definite direction. These attacks need not be epileptiform, nor of a congestive character. They may appear without convulsions, clouding of the sensorium, headache, or vomiting: though convulsions unconscious as well as congestive attacks, are not rare in cerebellar tumors.

Gowers assumes that in some attacks of aural vertigo the cerebrum may be involved from the cerebellum, and that transient unconsciousness may be present.

If we consider these three sensory paths which serve to instruct us of our position in space to be pathologically affected, we may then differentiate between the symptoms of irritation and those of defect. An irritant acting upon any part of the ocular reflex arc can, if it reaches the necessary severity, produce nystagmus. On the other hand, one depending upon the kinesthetic sense tracts may lead to ataxia of varying severity.

If the point of attack lies in the peripheric sensory or motor nerves, the ataxia is not as pronounced as when the site of the lesion is higher up in the spinal cord. The vestibularis has no centrifugal reflex arc. Its irritation, if it is sufficiently severe, always produces vertigo, which first acts upon the oculomotor nerves on the one hand, and on the motor tracts on the other. Thus nystagmus and staggering are the only objective appearances of vertigo visible to the observer. Both depend upon a false and frequently unconscious representation of our bodily position.

A second group of diseases leading to vertigo is that in which the centripetal tracts are defective. If only one is wanting the other two compensate. Tabetic patients, as long as their malady is logical in the spinal cord, are able to find their position through the eye and the vestibule. If the eye is excluded, vertigo sets in. Nearly complete exclusion of all three tracts can be assumed to take place in patients without a labyrinth while swimming under water, *e.g.*, deaf mutes, who feel an intense fear, and in only a few feet of water, swim directly underneath the

surface without being able to raise the head by a simple movement.

A third and last possible means of producing violent nystagmus would be that in the pathological defect of one path an irritation of one of the others should take place, *e.g.*, Ménière's symptoms which have been observed in tabes after the progress of the disease has affected the nucleus of the vestibularis. Should we, finally, regard the various combinations, we may say that the stimulus must have a certain strength if it is to produce vertigo through one of the three sensory paths, and that weaker stimuli in two different sensory paths may be combined to produce a more permanent result. Further, in the absence of two sensory paths, the usual positions and changes of position are sufficient to produce vertigo. The site of the injury can vary according as the tracts are affected inward from their peripheric terminal organs to the points where the fibers leave them to communicate amongst each other. This location is in the middle part of the cerebellum (the worm), where Deiter's nucleus and the vestibularis send communicating fibers to the oculomotor nuclei, and to the anterior horns of the spinal cord, and all three tracts are in communication with the cerebellum.

The true rotating vertigo is probably to be referred to the ocular and vestibular paths. The other erroneous conceptions of our bodily position may be caused by these as well as by the kinesthetic paths in the most varying combinations.

The experiments to increase a slight degree of vertigo up to a grade of visible symptoms; namely, wavering and nystagmus, can, under certain circumstances, aid in making a diagnosis.

If one of the three paths can be excluded without increasing the vertigo, then it is useless and paralyzed. If the vertigo is thereby made less, then it is the site of the lesion. If the vertigo is made greater, then it is necessary and useful as a compensating agent, and is consequently little damaged. Increasing the stimulus does not aid us in making a diagnosis of location. On the other hand, in order to determine the site of the morbid cause, certain accessory symptoms should be investigated. For the eyes, the appearances of double images; for the ears, tinnitus and loss of hearing; for the spinal cord, reflex paralyses or increased paresthesia, sensation of touch, sensation of pressure, sensation of pain, localization, temperature, sense, power, consciousness of position of the extremities, and stereognostic perception.

AN ESSAY UPON THE GENERAL PRINCIPLES OF PREVENTIVE MEDICINE,

BY W. WAYNE BABCOCK, M.D.

Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia; Pathologist Kensington Hospital; Assistant Pathologist Philadelphia Hospital, etc.

Awarded the first prize of one thousand dollars in the competition instituted by The Maltine Company.

(Continued from p. 159.)

The Skin.

The well-known experiment of Gallé demonstrated that bacteria could penetrate the unbroken skin. After rubbing a culture of the staphylococcus into the forearm, a carbuncle surrounded by isolated furuncles promptly developed. Furuncles usually occur on hairy portions of the body rubbed by the clothing, such as the posterior portion of the neck in apposition to the collar, about the shoulder-blades, where fragments of dirt falling down the neck are caught and retained by the shirt, and portions of the wrist in apposition to the cuff. In such cases dust is most apt to be rubbed into the skin. In these infections the causal organisms probably usually reach the deeper layers of the skin along the hair follicles and sebaceous glands. Babes succeeded in inoculating a guinea-pig with glanders by so rubbing an ointment containing the bacilli into the skin that penetration into the glands was favored. It is also possible that bacteria may enter through the sweat-glands, but this is less probable, as the flow of perspiration usually tends to prevent their entrance, and practically furuncles are not found upon portions of the body, like the palms and soles, that are devoid of hair follicles. Apart from the pathogenic cocci, few bacteria are able to penetrate the unbroken skin in sufficient numbers to cause disease. Thus, the dictum of Wyssakovitch that the epithelial cells, while they maintain their integrity, protect the underlying structures and the general system against bacterial invasion, is in large part true. Persons who handle dead bodies occasionally develop localized tuberculous lesions (dissecting porter's wart), but these occur on portions of the hands subject to abrasion, and it has not been shown that the tubercle bacillus can penetrate the unbroken skin. Syphilitic virus can occur without a superficial lesion of the skin, although instances of syphilitic infection through the skin without perceptible lesion or chancre are recorded, this is very exceptional.

Among the molds that invade the skin may be mentioned those causing *favus*, *sycosis*, *herpes tonsurans* and *pityriasis versicolor*. Of the smaller animal parasites, the embryos of *uncinaria duodenale* have been observed to penetrate hair follicles of the unbroken skin. The *itch mite* burrows in the upper layers and the female of the *chigger flea* buries itself in the skin. The ova of various *Diptera* may be deposited in un-

protected wounds, causing them to swarm with maggots. *Demodex folliculorum* invades the sebaceous follicles. With the exception of the *uncinaria*, none of these parasites invades the internal organs.

Dermatobia noxalis of Central America and the larva of the *cayor fly* of Africa burrow beneath the skin and produce suppurative local lesions.

Wounds.—Organisms able to invade the uninjured skin may the more readily enter through breaks in its continuity. In this way infection may occur by any of the pus-forming bacteria, by the bacilli of tuberculosis, glanders, tetanus, plague and malignant edema, the fungi of actinomycosis and madura foot, the virus of syphilis, and other pathogenic agents. For infection, the lesion needs be very slight, the prick of a thorn being sufficient to produce the infection of madura foot, and the puncture of a rusty nail to cause tetanus. A scratch or slight abrasion will permit the inoculation of vaccinia, syphilis or tuberculosis. Mammary abscesses may occur in sequence to slight fissures of the nipples.

Of organisms that may be inoculated through the skin by mosquito bites, may be mentioned the *malaria* and other *hematozoa*, the organism of *yellow fever*, and forms of *filaria*.

In freely open wounds the danger of serious infection is relatively less than in narrow, punctured ones, provided no large serous surface be opened. In such wounds the free access of oxygen inhibits the growth of the bacteria of tetanus, and of malignant or gaseous edema, while the free drainage favors the removal of all pathogenic organisms. Accumulations of fluid in wounds, forming the so-called "dead spaces," are favorable to bacterial multiplication, and by pressure tend to interfere with the protective action of the adjacent tissues. *Drainage tubes* and *wound packing*, if not guarded, favor the entrance and multiplication of bacteria in wounds. Sutures and ligatures may not only form channels for bacterial invasion, but by pressure cause tissue anemia and devitalization, so that the bacteria have less resistance to overcome. It is claimed that saprophytic bacteria placed upon fresh wounds may be detected in internal organs within fifteen to twenty minutes, indicating the rapidity of the invasion. When granulations cover the wound, the danger from septic absorption is diminished. The older surgeons, appreciating this, permitted the flaps of amputation wounds to granulate before coapting them.

The Nose, Mouth and Pharynx.

The *mouth* constantly contains large numbers of bacteria, most of which are harmless. In many mouths there are also present pathogenic organisms of low virulence. They may invade the tissues and produce disease, should any cause sufficiently reduce the cellular resistance. This may explain the origin of the so-called ether pneumonia. Pneumococci present in the secretions of the mouth are inhaled into the lungs during anesthesia, and favored by the depressing condi-

tions incident to operation, excite inflammation. Diphtheria bacilli often remain for months in the secretions of the mouth and *throat*, especially in those who have had, or have been in contact with the disease. Such persons are a constant menace to *nonimmune* individuals with whom they associate. Diphtheria bacilli may also remain in the pharynx, larynx or nose for many weeks. The *tonsillar crypts* may harbor various cocci with pathogenic tendencies. Miller has shown that certain saprophytic organisms act upon the starchy food collected about the *teeth*, with the production of lactic acid. This gradually dissolves the mineral part of the tooth structure, whereupon other bacterial forms penetrate and destroy the decalcified portion, leading to dental caries. The *nose* is protected against bacterial invasion by the presence of a mucus, unfavorable for bacterial growth, and a lining of ciliated cells, that tend to remove foreign particles. Besides this, leucocytes and other cells are present that probably exert a bactericidal action. Parke and Wright found that the nasal mucus contains comparatively few bacteria, and that it had a bactericidal action upon the anthrax bacillus, although little or none upon many other germs studied. Rats may be infected with plague by merely touching a smooth rod that has been dipped into a virulent culture to the mucosa. The organisms of *rhinoscleroma* and *glanders* invade the mucous membranes of the nose and palate. Of the animal parasites, the ova of *dipterous insects* may be deposited in the nose and the larvæ (maggots), may occasion not only marked inconvenience, but even fatal disease. The *screw-worm*, or larva of *Lucilia macellaria*, may penetrate the nasal mucosa and even destroy the cartilages and bones. More rarely, certain *Pentastomes*, as the larvæ of the *Linguatula rhinarie* and *Porocephalus constrictus* invade the nose, its accessory sinuses, and even the internal organs, as the lungs, liver and kidneys.

Accessory Sinuses.—From the mouth and nasopharynx, infection may spread to the ethmoidal or frontal cells, to the antrum, the internal ear, or the lachrymal duct and conjunctiva. Such extensions occur in the exanthemata, especially *measles*, *scarlet fever* and *smallpox*, and in *diphtheria*, *tuberculosis* and other zymotic conditions. The most frequent of the serious infections is that of the *internal ear*, which often leads to the perforation of the drum-head, infection of the mastoid cells, necrosis of the temporal bone, and, at times, septic infection, through contiguity of the lateral sinus and cerebro-substance with the production of *thrombophlebitis* and *cerebral* or *cerebellar abscess*. For these serious complications, *measles* and *influenza* are especially responsible. The tubercle bacillus may remain in a diseased middle ear for years, and finally light up a generalized infection.

These complications suggest the attention that should be given to the nasopharynx during and after the exanthemata, diphtheria, influenza and other infections involving this region. Residual catarrh should be treated, and adenoids, polyps

and enlarged pharyngeal tonsils reduced in size or removed.

Infection through the *external ear* is less important, and usually results only in localized abscesses or furuncles of the meatus. Infection of the internal ear through the meatus is uncommon. The *lachrymal ducts* are not infrequently involved in rhinitis, with resulting troublesome forms, *dacryo-cystitis* and even *lachrymal sinuses*.

The conjunctiva is often infected directly through contact with towels, fingers, dust and other objects carrying infectious organisms. *Gonorrhea*, *trachoma*, and other forms of purulent *ophthalmia* are diseases most frequently transmitted in this way.

Antral infection may result from the extension of rhinitis, or through a diseased tooth, the root of which enters its cavity.

Gastro-intestinal Tract.—At birth, no microorganisms are normally present in the alimentary canal, but in twelve or eighteen hours bacteria appear in the intestinal contents, and thereafter are present throughout the life of the individual. The stomach, with its acid secretion, contains fewest bacteria, while the contents of the large intestines contain the largest number. In milk-fed babies two organisms are found to be constant and to predominate over all other varieties—*bacillus coli communis*, which has been noticed in largest numbers in the lower bowel, and *bacillus lactis aerogenes*, which appears to predominate in the upper part of the infantile small intestine. There are also lesser and variable numbers of other bacteria, yeasts and molds. The constancy with which microorganisms are found in the stomach and intestines in health has very naturally suggested that they play an essential part in the process of digestion.

The results of the experiments of Nuttall, Theirfelder and Schottelius upon guinea-pigs and chickens to determine this, are not conclusive.

Observations made in infants and adults indicate that bacteria are not essential in the normal digestive processes. Despite the repeated accessions of large numbers of bacteria in the act of swallowing, the stomach and ileum—portions of the alimentary tube most active in the digestive processes—contain relatively the smallest number of bacteria, while in the colon, in which there is the least digestive action, bacteria are found in greatest number. It is probable that, were it not for the repeated accessions of bacteria through the esophagus, the stomach and upper bowel would speedily become sterile. Van Puteren studied bacteriologically the contents of the stomach in healthy babies, and found that in 18 per cent. of the nursing infants, whose mouths were carefully washed out before feeding, the gastric contents were sterile, a condition that could hardly be present were bacteria essential to the digestive processes. Many tissues show a constant tendency to inhibit, remove or destroy bacteria, and the leucocytes seem to be engaged in a continuous warfare with microorganisms.

The digestive action of bacteria secured from the gastro-intestinal tract, is often feeble as com-

pared with the action of the normal ferments. Moreover, injurious compounds are frequently produced. For example, the formation of peptones by bacteria may be but a step in a putrefactive process, the peptones formed being finally converted into various end-products of putrefaction, many of which are toxic. In the action upon carbohydrates bacteria form such irritating substances as alcohol and acetic and lactic acids, while from the fats various disagreeable and toxic acids are evolved.

Germ-free solutions of the normal ferments seem to retain their digestive powers. There is, therefore, ground for believing that bacteria are not essential to the digestive process, and it would seem that their constant introduction necessitates a continuous greater or lesser expenditure of resistive force on the part of the organism.

Of the bacteria that may directly invade the body through the walls of the alimentary tract, we have the microorganisms of *typhoid fever*, *cholera*, *tropical dysentery* (including the bacillary and amebic forms), and other diseases. Booker believes that excessive numbers of the colon bacillus and *bacillus lactis aerogenes* may be responsible for the milder forms of diarrhea. *Bacillus proteus vulgaris* seems to be responsible for more serious and chronic forms, while the very serious toxic and often chronic types are particularly associated with streptococci and other micrococci. All of these organisms may be present in large numbers in milk.

Most of the *animal parasites* comprising the round-worms, flukes and tapeworms are acquired by the ingestion of infected food or water, as has been set forth in a previous chapter. The eggs of various *insects* may be swallowed and the larvæ may develop within the intestinal tract; among such, the house-fly, the flower fly, blue-bottle fly and other Diptera may be mentioned. Instances in which the larvæ of beetles and moths have occurred in the intestinal tract are also on record.

Respiratory Tract.

That solid particles frequently enter the pulmonary alveoli is proved by the frequent finding during postmortem examinations of grit diffused through the lungs.

If such coarse particles may gain entrance to the lungs during life, it is evident that minute parasites may likewise be conveyed. Experimentally, infections have been produced by inhalation, but, as a rule, with considerable difficulty, and at present it is generally believed that under the ordinary conditions of life, the lungs are rather infrequent portals of entry of infection.

The localization of disease in the lungs is not a proof of primary invasion through the respiratory tract. The causal agents of many respiratory diseases are now believed to enter through the lymphatics from the nasopharynx or, by way of the thoracic duct from the gastro-intestinal or other remote tracts. The evidence that Wasden puts forward that yellow fever and typhoid are

respiratory infections is insufficient, and is at variance with established knowledge. The colonization of bacteria in the lungs depends more upon the relative susceptibility of these organs than upon the portal of entry. The lungs are guarded by the various protective devices of the upper respiratory tract, so that pulmonary infection is much more likely after tracheotomy or laryngotomy. An important mode of infection is by the inspiration of infectious mucus or food.

This is especially apt to take place during anesthesia (*inspiration* or *ether pneumonia*), in conditions of paralysis of the pharynx, profound asthenia, or after intubation. Parasitic molds, including varieties of the *aspergillus* and *mucor*, are occasionally carried to the lungs in respiration and produce disease. One of the most important of these is *Aspergillus fumigatus*.

Genito-urinary Tract.

The bacteriology of the female generative organs has been investigated by Hausmann, Winter, Doderlein, Kronig, Menge, Williams and others. It has been shown that in health the secretions of these organs are either sterile or non-virulent. At birth complete sterility exists, but the external genitals are soon contaminated and the *vagina* becomes the seat of an acid-forming bacillus that usually persists throughout life. This organism apparently produces lactic acid, rendering the vaginal mucus an unfavorable medium for the growth of most bacteria and the bacillus is also credited with the ability to directly destroy many pathogenic forms. While such organisms as the pyogenic streptococci may contaminate the skin of the external genitals, it is generally admitted that in health they lose their virulence or disappear as the cervix is approached. Doderlein found that pyogenic organisms experimentally introduced into the vagina disappeared within a few hours; while if an antiseptic douche of sublimate were given, the normal disinfecting action was markedly delayed. The vaginal secretions in pregnancy are also, as a rule, free from pathogenic microorganisms, so that autoinfection from this source rarely or never occurs. Childbirth, dilatation of the cervix, curettage of the endometrium, the introduction of tents and other procedures that bruise or tear the tissues, favor infection by reducing the normal tissues' resistance. Infection is also favored by the presence of foreign bodies. After abortion or miscarriage, clots or portions of dead tissue may be left within the uterus and serve as culture media for many bacteria that may enter. The large blood and lymph sinuses in the pregnant uterus facilitate bacterial invasion. It is important, therefore, that in various operative procedures the gynecologist, obstetrician or midwife reduce traumatic injury to a minimum, guard against the retention of tissues or clot within the uterus and observe scrupulous care that their hands, instruments or solutions do not carry infection. Tents are not to be used except possibly in the modified and relatively aseptic manner suggested

by Goelet. The danger of lighting up latent or chronic forms of inflammation in the pelvis by a rough manual examination, the introduction of uterine sound, dilatation of the cervix or similar procedures, is recognized by gynecologists. As a rule such disturbances are to be carefully avoided unless measures against the chronic inflammation are conjoined.

Against a few disease-producing bacteria, notably the *gonococcus*, Doderlein's acid-forming bacillus affords little protection, although even this coccus apparently finds the vaginal secretions the least favorable habitat. In an extensive series of examinations of prostitutes, Laser found the gonococcus most frequently in the urethral and in the cervical canal and rarely in the vagina. It is interesting to note that four-fifths of the III cases in which this microorganism was found gave no gross evidence of gonorrhea.

With the normal resisting mechanism inhibited by chemical or mechanical influences invasion by the pyogenic organisms, the *diphtheric bacillus*, certain *molds*, and perhaps by the causal agent of *carcinoma*, may occur. *Tuberculous infection* seems a rare but possible condition, while *syphilitic and chancroidal infection* seem unhindered by the normal secretions; although for their occurrence a slight mechanical lesion may be necessary. The *uterine* secretion is normally alkaline and the *fallopian tubes* and the *endometrium* lined by cells having cilia that wave toward the cervix. The cervix normally contains a plug of mucus that seems to be unfavorable to bacterial growth. The studies of various observers unite in demonstrating that the uterine cavity in health contains no bacteria. Except the gonococcus, few bacteria invade the uterine cavity from below, without mechanical injury.

Irritating factors apparently may render a chronic gonorrhea acute, and Wertheim found that an acute infection may occur from reinoculation of gonococci, despite the existence of the chronic infection.

The *smegma bacillus*, frequently found on the external genitals of both sexes, seems to be free from pathogenic action. It is easily mistaken for the tubercle bacillus, which it closely resembles in form and reaction to stains.

The *male urethra* is probably normally free from bacteria, except within a short distance from the meatus.

Prophylaxis.

This is chiefly embodied in the inculcation of higher morals in a community, in the practice of aseptic midwifery and the avoidance of "meddlesome" gynecology. Venereal infections and those resulting from criminal interruptions of pregnancy are noteworthy. These evils should be more fully exploited in their civic, economic, pathologic and moral relations. No nation is sufficiently strong to bear their extensive practice without grave results.

THE GENERAL RESULT OF BACTERIAL ACTION.

The varying results that follow the entrance of pathogenic organisms into the body are expressions of the alteration or arrest of the normal cellular activities, and are produced by chemical compounds liberated by the invading cells. These toxic compounds may have (1) a *local* action producing changes, chiefly in the immediate vicinity of the bacteria, probably because the substances are here most concentrated; (2) the toxic action may be *diffuse*, producing widespread functional or structural alterations in the body, or (3) the toxic action may be *specific*, picking out certain susceptible cell groups; it may be in areas remote from the site of the bacteria. *Local activities* are characterized by chemotactic, hyperplastic or degenerative or necrotic changes in the vicinity of the microorganisms. These conditions are usually associated, although one is predominant.

If the most marked action be chemotactic, leucocytes are attracted about the bacteria (leucocytic or round-cell infiltration) and if there be an associated local liquefaction of tissue, a circumscribed cavity containing leucocyte laden liquid results, that is termed an *abscess*. Should this process occur in a more diffuse manner in the subcutaneous tissue, the process is called *cellulitis* or *phlegmon*. By the rupture of an abscess or phlegmon through the adjacent surfaces, bacterial channels open at one end (*sinuses*) or at both ends (*fistulae*) may be formed; or, if there be destruction of the surface layer, with superficial loss of substance, an *ulcer* is formed. Chemotactic forms of inflammation occurring in serous cavities are termed *emphyemas*.

Upon mucous surfaces chemotactic organisms cause *purulent catarrhs*. Other bacteria, as the diphtheria bacillus produce superficial exudation and necrosis of mucous surfaces—*pseudo membranes*. When injected under the skin of animals certain organisms as *bacillus anthracis* cause an exudation of serum—inflammatory *edema*. Other bacteria, as *bacillus aerogenes capsulatus* are gas-forming, so that a *gaseous edema* results. The tubercle bacillus is responsible for a local *coagulation necrosis* that is apt to be followed by caseation.

Diffuse Results in Bacterial Action.

Widespread functional or structural changes may result from the absorption and diffusion of bacteria toxins throughout the body. *Functional changes* are expressed by exalted, depressed or perverted metabolism. Fevers, rigors, convulsions, delirium and coma are clinical expressions of such abnormalities of function. The *structural changes* usually are degenerative and may be characterized by *parenchymatous* degeneration, as occurs in yellow or typhus fevers; *fatty degeneration* as occurs in yellow fever; *amyloid changes* as occurs in chronic tuberculosis, syphilis

and leukemia; hyaline or other degenerative change. At times the condition is regenerative and leads to diffuse tissue overgrowths or *hyperplasias*. When pathogenic bacteria show their chief activities in the circulation of the blood, the condition is termed *septicemia*. Abnormalities characterized by the circulation of toxins are called *toxinemias* and the designation *sapremia* has been applied to those diseases, conditions in which products of putrefaction are supposed to circulate within the blood.

The Specific Results of Bacterial Action.

The circulation of toxins may chiefly affect certain susceptible cell-groups leading to specific structural alterations, or to abnormalities in function. Thus, in tetanus there is a special stimulation followed by exhaustion of motor cells in the central nervous system. In diphtheria there may be, from the specific action of the bacterial toxin, degenerative changes in nerve centres leading to various palsies. Many toxins have a specific action upon thermogenic centres in the medulla. As a result of other infections, there may be an overgrowth of certain special tissue throughout the body. This may be the cause of the widespread lymphadenoid hyperplasia in typhoid fever, leukemia and other diseases, and the generalized increase of the fibroconnective tissue in various organs, the products of which lead to the various scleroses or cirrhoses.

Destruction and Elimination of Microorganisms by the Body.

Within the body bacteria usually first *enter* the lymphatic channels and are carried to the neighboring lymph-glands. Here they may be *destroyed* by the *bacteriolytic* action of the cells or may break through the lymphatic barriers and invade the blood. Within the blood they must contend against the *germicidal* activities of the plasma, the *phagocytic* action of the leucocytes, and the bacteriolytic properties of both the white and red corpuscles. Should they successfully resist these various agents, there remain certain organs containing cells having well-marked bactericidal properties. Of especial importance is the *liver*. If suspensions of bacteria be introduced into the portal vein, many organisms otherwise virulent, may be overcome by the hepatic cells, so that the blood leaving the liver will be found to contain either no bacteria or bacteria much reduced in virulence. This action has been shown to be well marked against the bacillus of anthrax, *Streptococcus aureus* and *Oidium albicans*. In general, the bactericidal power of the *lungs* seems to be much less than that of the liver; yet against *Streptococcus pyogenes* the lungs show a well-marked protection, while the liver has but little. Adams believes that in health a certain number of bacteria are taken up from the alimentary canal by leucocytes and carried into the lymphatic glands or the venules of the portal system. In the lymphatic glands of the liver they are destroyed by the leucocytes or by the endothe-

lial cells. Should any bacteria enter the systemic circulation through the liver or the thoracic duct, the kidneys and perhaps other organs tend to remove them. There may exist, therefore, a condition of latent microbism or latent infection, and this may be accentuated, if there be an excess of bacteria in the intestines, into a condition of subinfection associated with a chronic inflammatory disturbance in the lymph-glands, liver, kidneys and other organs. Such a condition may be the cause of forms of hepatic cirrhosis. The pigmentation (hemochromatosis) of the liver-cells, lymph-glands, and abdominal wall, Adams attributes to the multitude of disintegrating bacteria deposited in the cells. A similar condition of the liver has been found in pernicious anemia, and as this is associated with a chronic inflammatory condition in the upper digestive tract, it is supposed to be due to the passing into the portal blood of excessive numbers of colon or allied bacilli that subsequently take up iron containing pigment from destroyed red corpuscles.

It is believed that the *kidneys* are nearly equal to the liver in bactericidal ability, while the *brain* seems to possess but little. Although not experimentally demonstrated, the action of the *red bone-marrow* may be very important, and may explain why injuries to bones in the young apparently determine the localization of tuberculosis.

Bacteria seem to be *eliminated* by the usual excretories, especially the skin, the intestinal tract and the kidneys. In health, the mammary glands are apparently not an exit for the bacteria in the blood, but in severe or long-continued illness the experiments of Balch, Weleminsky and others indicate that they may thus be eliminated. As is elsewhere mentioned, tubercle bacilli have repeatedly been found in the milk from tuberculous cows free from disease of the udder. Clinical observations indicate that a similar elimination may occur in women. Mothers with tuberculosis, therefore, should not nurse their children.

Bacteria may remain for long periods of time within the body after the subsidence of infection. This is exemplified in the persistence of diphtheria bacilli in the throat and nose after diphtheria, typhoid bacilli in the intestines, gall-bladder and urinary tract after enteric fever, and tubercle bacilli in old caseous nodules.

CHAPTER X.

THE DIFFUSION OF PARASITES BY ANIMALS.

The development, reproduction and dissemination of many pathogenic organisms depend chiefly upon certain animals, in or on whose bodies they undergo stages of evolution, multiply, or are merely carried from place to place. Nearly any type of animal, from the lowly organized ameba to the highly specialized man, may be an active factor in the spread of disease.

The animal concerned may be (1) healthy and act simply as a conveyor of the *materies morbi*; (2) it may suffer from a disease similar to that which it spreads, or (3) from a different disease,

the result of a different stage in the life-history of the same parasite. Thus, the healthy nurse may carry virulent bacilli of diphtheria in her throat; the careless accoucheur, the streptococcus of erysipelas upon his hands; tuberculosis may be transmitted from the consumptive, and small-pox from the variolous patient; while the cysticerous disease of the hog's muscle causes tapeworm in the human intestine and the blasts of the mosquito become malarial parasites in man.

The animal in which the parasite acquires its highest development is termed the *definitive host*; the animal in which it undergoes the lower stages of development is the *intermediate host*. For certain parasites man acts as the definitive host; for others, as the intermediate host. For example, the adult forms of the beef, pork and fish tapeworms are found in man; the adult form of the dog tapeworm in the dog, while the adult form of the malarial parasite occurs in the mosquito. Rarely, as in the case of the pork tapeworm, man may harbor either the adult or the embryo parasite.

At times, several animals play a part in disseminating disease, or an animal may spread an infection through his progeny. A rat may be infected by bubonic plague from contaminated soil; the cat that kills the rat may carry contaminated fleas from the rodent to man. The parasite of Texas cattle fever is taken from cattle by ticks, that transmit it to their progeny, and in turn the young ticks inoculate healthy cattle.

Animals may transmit parasites to man by *simple contact* by *polluting food, water or air*, or by *inoculation* through the bites, punctures or scratches that they produce. Parasites may also gain entrance to the body by the ingestion of diseased or contaminated animal food.

PROTOZOA.

Of the lowest form of animal life, the *protozoa*, but little is known as to their relation to the transmission of parasitic microorganisms. It is known, however, that amebæ frequently take bacteria into their protoplasm, and it is not probable that future investigations will demonstrate that protozoa play an important rôle in the life-history and dissemination of certain parasites.

MOLLUSCA.

There is strong evidence that contaminated *oysters* have, in a number of instances, been responsible for epidemics of typhoid fever and perhaps of Asiatic cholera. In every investigated case the oysters were exposed to sewage.

Chantemesse has shown that oysters exposed for twenty-four hours in salt water, contaminated by *typhoid* dejections or cultures, and kept unopened for a day after removal, will still yield the organisms of the disease. Boyce believes that typhoid bacilli do not occur in the tissues of the oyster, and that they disappear in from one to seven days after being placed in pure sea-water. Foote, however, says that they multiply in the tissues of the bivalve during the first two weeks, and although they then diminish, may still be

found after thirty days. The *cholera* organism was found by Klein in oysters four days after their removal from water previously contaminated; although De Giaksa found that this organism was destroyed in from four to thirty-six hours. The bacillus of *anthrax*, *Staphylococcus aureus*, *Proteus vulgaris*, *pneumococcus*, and other pathogenic organisms have been found active in oysters despite several weeks' exposure to sea-water.

Certain snails appear to be the intermediate hosts of worms parasitic in man. Such is supposed to be the case with the formidable lung fluke *Paragonimus Westermanii*. The guinea worm is believed to undergo an intermediate existence in a small fresh water crustacean—cyclops quadricornis.

As oysters are usually contaminated by polluted water, the *location of oyster-beds* is of extreme importance. The self-purification of rivers may be considerably modified by the influence of the sea into which they flow.

Prophylaxis.

The beds should be so planned that they are not exposed to sewage, either directly by the action of currents or indirectly as by the reflux at flood tide. If the source of pollution cannot be suppressed the bed must be removed. If oysters are removed from the sea to bays, rivers or lakes for purposes of "fattening" it should be ascertained that these bodies of water are free from pollution. Apparently through neglect of this precaution, an epidemic of typhoid fever occurred at Wesleyan University in 1894. Klein believes that oysters from polluted water may be rendered safe by placing them for 16 days in pure sea-water.

ARTHROPODA.

Insecta.

Of the arthropods, the *insects* are the most important disseminators of disease.

The idea that various insects may transmit disease has been suggested frequently in the past. Italians have long considered malaria as due to mosquitoes, while certain savage tribes in Africa retire to the mountain heights at night, or protect themselves from gnats by smudges or by anointing themselves with certain oils, in order to ward off the fevers they believe to be conveyed through the agency of these pests. Many years ago attention was also called to the possibility of excluding the "miasm" of malaria from houses by screening the entering air. Sydenham says that when insects, especially house-flies, swarm in summer, there will probably be an unhealthful autumn. Montfils, in 1877, wrote that anthrax might result from fly bites. Many similar observations have been made by others, but it is only within very recent years that indisputable proof has been collected of the activity of insects in the diffusion of disease among animals and men. The paper by Nuttall, of 1899, was a masterly review of the subject, and its facts have here been freely employed.

(To be continued.)

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, MAY, 1903.

No. 5

ORIGINAL ARTICLES.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

BY FRANK WHITFIELD SHAW, M.D.,

Physician on Diseases of Children, Polhemus Memorial Clinic, Attending Physician to the Brooklyn Orphan Asylum and to the Norwegian Hospital, Assistant Attending Physician to the Methodist Episcopal Hospital, Brooklyn, New York.

Read at a Meeting of the Brooklyn Medical Club.

UNTIL recently, so little has been known of the condition described by the title of this paper, that it is likely cases have frequently remained unrecognized, and deaths occurring from it appeared under a mortality record of marasmus, malnutrition or tuberculosis.

At first, it was considered somewhat of a pathological curiosity and very little attention was given to it. So many cases have since become matters of record that at present it possesses sufficient diagnostic importance to create a feeling that it is something which may be encountered at any time. So far, between thirty and forty authentic cases, confirmed either by operation or by autopsy, are on record.

Williamson in 1841 and Dowosky in 1842 are credited with furnishing the earliest recorded cases. Following their report, there was a period of almost complete silence on the subject until about 1885, when single cases began to be reported in the journals. Even now, the literature is almost entirely periodical.

Among those who have since published cases are Peden and Newton, Pitt, Hirschsprung (2 cases), Thompson (3 cases), Finkelstein, Gran (3 cases), Schwyzer (3 cases), De Bruyn Kops, Soltan Fenwick, Henry Ashby, Hartman, Cautley, Still (3 cases), Morley Fletcher, Rolliston & Hayne, J. H. Nicoll (with operation), Gillot, and Heubner.

The condition does not appear to modify the progress of fetal development, the children being physically well formed at birth and of normal weight. Their progress after birth is usually uneventful for a period varying from a few days to two or three weeks, at which time the first and most pronounced symptom—vomiting—makes its appearance.

Pathological Findings:—Autopsy shows nothing abnormal in the viscera other than that of the stomach. The intestines are usually collapsed and contain little if any fecal matter. The stomach is more often dilated and its walls near the cardiac are somewhat thinned. Its mucous lining seldom gives any evidence of irritation or ulceration. It is at the pylorus that the true pathological changes are found. The pylorus appears thickened, hard and resisting and is usually conical in shape. It varies in length from two-thirds of an inch to one inch, the thickness averaging about one-half of an inch. The lumen is very much lessened, its capacity varying from that of a small probe to a No. 4 soft rubber catheter. At autopsy, it is usually tight to all fluids owing to a peculiar swelling and folding of the mucous membrane. The pyloric thickening is due principally to hypertrophy of its circular muscular fibers. The following complete microscopical findings are furnished by Schwyzer in the report of his second case (*N. Y. Med. Journal*, Nov. 27, 1897). He made sections as follows:—(1) Transverse cut of the pylorus; (2) Longitudinal cut from the antrum pylori; (3) Cuts from the walls of the fundus ventriculi. These sections of the pylorus showed:—mucosa greatly, muscularis enormously, serosa somewhat, thickened; the structures of the mucosa nearly normal; the division in pars glandularis, muscularis mucosæ and submucosa, distinct; no nests of epithelial cells in the deeper layers of the mucosa; marked mucous degeneration in the glandular epithelium, between which and the subepithelial tissue, were leucocytes. While the muscularis mucosa is not much thickened, the circular muscular layer of the muscularis is extremely thickened and forms the main part of the tumor. It is composed chiefly of smooth muscle fibers and a proportionately large number of connective tissue cells. In the antrum pylori, the circular muscular layers are hypertrophic but the longitudinal fibers also show thickening. He concludes by saying, the anatomical diagnosis is clear; hypertrophy and stenosis of the pylorus.

Clinical Picture:—Clinically, the picture varies but little in the different cases. The history is usually one of a healthy and physically well-formed child at birth, born of parents giving no

important family history; the only exception being a few instances where two or more children born of the same parents have been afflicted with the same pathological condition.

After an uneventful period, varying from two or three days after birth to several weeks, the first indication of any trouble is sudden and persistent vomiting without any assignable cause. Food from the breast or bottle remains in the stomach for a few minutes and is then forcibly expelled. The child at once experiences relief and this continues until another feeding, when the same process is repeated. This state of affairs continues, regardless of the kind of food given.

The interval between feeding and vomiting may vary, but the ultimate termination is vomiting.

Occasionally, a feeding will be retained for several hours and appear to cause little or no discomfort, giving rise to a false sense of security and a feeling that treatment is beginning to be effective. A few minutes after the second or possibly the third feeding, an almost explosive vomiting will occur, the quantity of the material ejected being greatly in excess of the food taken at any one feeding and sometimes greater apparently than the total amount of all feedings subsequent to the last attack of vomiting. It consists principally of partly digested milk with an abundance of mucus. The reaction is usually acid.

Occasionally, the attacks of vomiting will become less frequent and violent following either a change of food or its method of administration. The quantity of food, likewise, appears to modify the attacks for a short time, overfeeding almost invariably being followed by violent vomiting.

In some cases, the act of taking the nipple will excite active vomiting and the expelling of the entire stomach contents.

As a means of controlling the persistent vomiting, lavage and gavage have both been tried, but with indifferent success. Systematic washing of the stomach before nursing has sometimes resulted in temporary improvement, continuing in some instances for two or three days, only to be followed by vomiting of even a more aggravated form.

Occasionally, only part of a feeding will be expelled at one time. Subsequent washing will demonstrate that the stomach is far from empty, containing one or more ounces of a sour-smelling fluid mixed with flocculi of casein.

Gavage has been equally successful in allaying symptoms for a variable length of time. When direct breast nursing is attended by instant vomiting, feeding through a soft rubber catheter may

be followed by a temporary cessation of symptoms. But subsequent vomiting or careful lavage employed a few hours later, demonstrates the presence of a large quantity of stomach contents and also the fact that little, if any, food is passing the pylorus.

The natural consequence attending this stubborn and prolonged vomiting is a rapid emaciation. At this stage, unless the possibility of pyloric stenosis is constantly kept in mind, the case may easily be mistaken for marasmus or malnutrition. Unless relief is soon obtained and that permanently, the final outcome is death, preceded by a period of partial or complete unconsciousness. Occasionally, there are convulsive attacks, during one of which death frequently occurs. The period at which a fatal termination may be expected, varies from four or five weeks after birth to about six months, the majority of cases not living much beyond the tenth or fourteenth week.

Constipation is persistent, such movements as do occur being free of all evidences of food products and consisting of a greenish, mucous material.

This in brief is the clinical picture and ultimate outcome of non-operative cases of congenital hypertrophic stenosis.

Exceptional Cases:—There are, however, two other varieties of, presumably, the same pathological condition, which differ somewhat in clinical history. In one, recovery occurs within a few days and without operation. In the other, the disease runs a much more extended course, continuing sometimes for a number of years, but terminating fatally without operation.

The first is the so-called congenital spasm of the pylorus, first suggested by Thompson of Edinburgh, and assigned by him as the primary cause or etiological factor in the production of the pyloric hypertrophy.

As coming under this class, Southworth has recently reported a case of recovery in an infant where the symptoms began on the third day and were coincident with the establishment of lactation. The clinical history was practically the same as already given, with the exception that in this case the condition was not so prolonged; recovery and cessation of symptoms occurring suddenly and unexpectedly on the fifteenth day. He bases the correctness of his diagnosis upon "the early occurrence and persistence of the vomiting, uninfluenced by the usual measures for its relief;" the absence of milk residue in the stools; absence of any evidences of obstruction below the duodenum; perfect digestion of milk when it did

appear in the stools; and finally, upon the absence of any condition in the mother which might induce the symptoms in the child.

Huebner has also reported three cases, in one of which the symptoms did not occur until the fifth week, and in which recovery was thought to be due to dietary measures.

The second exception to the usual course of pyloric stenosis, is contained in reports furnished by Landerer, Maier, Tilger, Sonnenburg and others. In these cases, the age limit ranged from five years and upward.

It is to this variety of cases, based not only upon its advanced age but also upon its peculiarly suggestive clinical history, that the following case, coming within my own experience, is briefly reported:

Report of Case.—The patient, a boy, came under observation when between four and five years of age. From infancy until that time, he had been an inmate of a large semi-public nursery. Upon admission to the Brooklyn Orphan Asylum, his general condition was that of a well-formed boy, but anemic and markedly emaciated. Mentally, he was far from bright and during his stay, showed very little improvement. Soon after admission, he was transferred to the hospital, suffering from what seemed to be acute indigestion with persistent vomiting. Gastric pain was marked, but was soon relieved after the stomach had thoroughly emptied itself. There was no rise of temperature, no diarrhea, neither were there symptoms indicating cerebral or pulmonary trouble. A few days in the hospital, accompanied by a course of calomel and saline and a fluid diet, apparently cured him and he was returned to the general routine of the institution. No restriction was placed upon his diet. At intervals of four to six weeks, the above condition was repeated, with practically the same results as to treatment.

Inquiry was finally made at the nursery from which he came and the following brief history obtained: That he had had periodic attacks of vomiting almost from the time of birth; he appeared at all times to be hungry; that after he became old enough to get around by himself, he would search even the floor for any crumbs he might find and would eat them; finally, that his diet in the nursery had always been largely fluid. His subsequent history was practically as related above. He would come to the hospital at intervals of a few weeks, have persistent vomiting and gastric pain for a few days and then be discharged cured, continuing on a regular institu-

tion diet. In the interval, he would thrive, his growth being but little retarded by his attacks. This history was repeated for nearly three years, the attacks becoming gradually more frequent and their duration more prolonged, attended by gradual emaciation.

His final attack, which lasted ten days, began as the others had done but with no permanent relief of the symptoms. He was hungry most of the time, vomited constantly and suffered great abdominal pain all of the time. Everything taken into the stomach was vomited immediately. The vomited material contained large quantities of bile. Constipation was extreme, such movements as he did have, being intensely green and showing no evidence of food products.

At the end of ten days, he was greatly exhausted and emaciated and during one of the attacks of vomiting, he suddenly died.

The pylorus at autopsy was found to be a hard, resisting mass of hypertrophied tissue, concise in shape and about $\frac{3}{4}$ of an inch long. The canal would admit a fairly good sized probe if forced through, but it was absolutely tight to all fluids, owing to a swollen and twisted condition of the mucous membrane. A small particle of meat was found lodged in the narrowest part of the constriction. There were no ulcerations and the mucous membrane of the stomach was but little congested. The intestines contained practically no fecal matter, and at no time was there any indication of fecal vomiting.

Remarks.—This case, owing to its protracted course, may not at first appear to be typical of congenital stenosis as commonly seen. Certainly, the condition in this boy was for years one of incomplete stenosis with only occasional pyloric spasm. The case is irregular only for the reason that complete closure came on gradually instead of at the end of a few weeks or months. Were it not for the history of persistent vomiting, dating practically from birth, it might be considered as belonging to a similar condition occurring in adults, not of congenital origin.

The presence of abundant bile in the vomit and the absence of any signs of fecal vomiting would tend to discredit the diagnosis of a constriction at any part of the alimentary canal. Nevertheless, the autopsy shows that such a diagnosis would have been correct and that recovery might reasonably have been expected to follow operation.

Sonnenburg reports the case of a boy five years of age, giving very much the same symptoms and history, upon whom he performed a successful

pyloroplasty. In his opinion, the case was one of congenital stenosis.

From the history, it does not seem unreasonable to believe that both this case and the one reported by Sonnenburg, are properly classed with those of congenital origin.

These histories, also, appear to offer a possible explanation of some of the cases of cyclic vomiting, mention of which is made by Holt and others.

Physical Signs.—The most pronounced and convincing physical sign, when it can be determined, is the presence of an epigastric pyloric tumor, felt a little to the right of the median line. It is by no means constant, being found by some and not by others. The presence of a tumor, taken in connection with the general symptoms, makes the diagnosis practically certain.

A distinct peristaltic movement of the stomach walls can, in many cases, be both seen and felt.

The size of the stomach varies at different periods; sometimes being of normal size; again, abnormally dilated, and finally, contracted, appearing as a firm but flexible ball.

Etiology.—There have been many theories advanced as to the cause of this condition, but so far the etiology is a very much disputed point.

By some, the hypertrophy is thought to be primary, resulting in a secondary pyloric spasm.

Thompson is of the opinion that pyloric spasm is primary, being due to some disturbance of the gastric nerve supply, resulting in a secondary hypertrophy.

By others, there is said to exist primarily an antagonistic spasm of the pylorus and stomach, resulting from gastric irritation following the large quantities of liquor amnii supposed to be swallowed by the fetus during the later months of intra-uterine life.

Another view discards any connection between the local condition and the stomach contents, considering that the disordered nervous mechanism bears some relation to delayed or imperfect development.

By others, chronic inflammatory processes were thought to produce it, but this theory has been quite thoroughly disproved owing to the absence, post-mortem, of any evidence of irritation or ulceration.

One thing is certainly true; the stenosis which constricts the opening, whether it be primary or only secondary, may be partial or complete and may proceed slowly or rapidly.

When the stenosis is complete and persists as the result of advanced hypertrophy, the prognosis is grave, a fatal termination occurring within a few weeks.

That symptoms and death may occur within a few days after birth and the autopsy reveal well-defined hypertrophy, seem to disprove the belief that simple spasm is the only congenital condition existing.

Diagnosis.—The existence of pyloric stenosis and its relation to certain forms of sudden and persistent vomiting, is now so well established, that its presence ought always to be suspected in cases of vomiting of obscure origin and which fail to respond to the usual methods of relief.

Until recently, the diagnosis has not been made until the case reached the autopsy table.

As a means to diagnosis, the following characteristics of the disease are summarized from Cautley's reported cases:

- (1) Vomiting occurring without apparent cause and persisting in spite of treatment.
 - (2) The absence of bile from the vomit.
 - (3) Obstinate constipation.
 - (4) Marasmus.
 - (5) The presence of a tumor in the region of the pylorus.
 - (6) The absence of abdominal distention except dilatation of the stomach in some cases.
 - (7) The absence of signs or symptoms of gastritis and of the more common forms of intestinal obstruction.
- In addition to the above, Schwyzer attaches importance to the fact that two or three hours after taking food, nearly all of it can be removed by the stomach tube.
- In such cases as recover suddenly after a few days' illness, the diagnosis can only be inferred from a study of the clinical history. When the course of the disease is extended over a period of years, the diagnosis may easily be obscure during its early stages. The diagnosis will finally depend upon,
- (1) The regularity of the recurrence of the attacks.
 - (2) A gradual increase in severity.
 - (3) Absence of all symptoms referable to the stomach during the interval.
 - (4) The cyclic character of the vomiting.
 - (5) Constipation during the attack and the intensely green character of such movements as do occur.
 - (6) Absence of any indication of intestinal constriction below the pylorus.
 - (7) Absence of fecal vomiting.
 - (8) Presence of a pyloric tumor as determined by palpation.
 - (9) Gradual emaciation.
 - (10) A process of exclusion; no other condi-

tion giving quite such an arrangement of symptoms.

Remarks.—The absence of bile in the vomit was at first said to be a characteristic symptom in all cases, but later reports prove that it is not always so. At least in one case (Schwyzer's third case), where the probable diagnosis of pyloric stenosis had been made, and operation accepted for its relief, a fatal postponement was made owing to the sudden appearance of bile in the vomited material. The correctness of the diagnosis was afterwards shown at the autopsy.

Likewise, the absence of a pyloric tumor, so far as abdominal palpation is concerned, is equally unreliable. Its presence can by no means always be detected. When found, it is usually in cases where emaciation has become extreme and the abdominal walls relaxed.

Treatment.—Except in a few instances of which the two additional cases reported below are illustrative types and in which there is always a reasonable doubt as to the correctness of the diagnosis of complete pyloric hypertrophy, all treatment which has stopped short of operative interference, has in the end proved to be unsuccessful. This applies not only to the entire range of dietary measures, but also to lavage, gavage, rectal feeding and therapeutic means. Any relief afforded by these measures is not lasting. The improvement may continue for a few hours or for several days in the more acute cases, but it is soon succeeded by an intensity and gravity of symptoms greater than before.

Among the operations suggested and already successfully performed are, pyloroplasty, pylorotomy, gastroenterostomy, and divulsions of the pylorus. Nicoll reports a successful case of divulsion according to the method of Loretta. In this instance, the child began vomiting at the end of the first week, the divulsion being performed during the sixth week.

When the amount of hypertrophy is very great, simple divulsion is not likely to afford relief that will be permanent, in which case, the more extensive operation will probably be preferred.

In conclusion, it may be said that cases of sudden and persistent vomiting, occurring a short time after birth without any assignable cause, and which resist all efforts at control, should be looked upon with suspicion and receive at least a provisional diagnosis of congenital pyloric stenosis.

Finally, disease of the pylorus ought to be suspected in cases of cyclic vomiting extending over a period of several years.

Reports of two cases of partial pyloric hypertrophy in which spasm appeared to predominate.

Case I.—Boy, aged 2½ years; weight, 23 pounds.

History.—For about fifteen months he had been treated for persistent vomiting and abdominal pain. He was extremely languid, given to fits of depression, followed by periods of undue excitement in manner and very irritable. About once in eight or ten days, he would have a rise of temperature, become very restless, and have general spasmodic contractions of the voluntary muscles and become practically unconscious. His bowels were very constipated, being relieved only by active medication and rectal irrigation. These attacks became so regular in their occurrence that one could be predicted almost to the hour. They were accompanied by persistent and exhausting vomiting lasting at first for several days. During these attacks, the stomach area became distended and showed at times a distinct peristaltic wave, accompanied by great pain and crying. These cyclic occurrences became known as attacks, and were so described by the mother, in giving the child's history from time to time. This, in brief, is the history of the case up to the time of what now seems to be complete recovery. The interval between the attacks gradually became longer, passing from that of a few days to several weeks and finally to the present condition, there having been no attack now for over eighteen months. He has gained in weight and, while somewhat undersized, appears to be perfectly well.

Diagnosis.—Hypertrophy and spasm of the pylorus, in which the element of spasm predominated.

Case II.—A female infant of two months and eighteen days, at the time when first seen. Had had cyclic vomiting since it was three days old. Its appearance was that of a thoroughly emaciated infant. At birth it weighed slightly over seven pounds, at two and one-half months, its weight was six ounces over four pounds. It had the drawn and pinched appearance with the old man's face, as seen so frequently in marasmus with complete emaciation. Its cry was faint and pitiful. It slept practically not at all and its mother was exhausted with the care of it. Vomiting was almost constant, such intervals as did occur, not being more than twenty-four hours, when the vomiting would become explosive, the amount appearing to be even greater than the total amount of food taken during the period of temporary cessation.

Physical Examination.—With the exception of the absence of a palpable pylorus through the abdominal wall, the physical appearances in this case were classical. In addition to the cyclic vomiting, complete emaciation and general marasmic appearance, there was a ballooning of the stomach considerably beyond the line of the ribs and cartilages, presenting a perfect ocular demonstration of the stomach peristalsis seen in this condition. The stomach would literally roll under your hand. The intestines, on the other hand, were flat and contained practically no fecal matter. Such material as did occasionally pass into the napkin was of a slimy greenish and watery consistency. The child had never had such a movement as we usually expect to find in infants of her age.

At this time the case seemed hopeless without operation, and yet the physical condition of the child was such as to preclude even the possibility of so extreme a measure, although the parents gave their unqualified consent for operation in case it were thought wise to do it.

Operation was not performed and the child, after a most eventful period of over four months, made what now appears to be recovery. Spasm was gradually overcome and small quantities of food retained until finally the element of vomiting became comparatively unimportant.

Early in July of 1902, feeding and gain had become practically assured, the weight curve finally showing an upward tendency, and the child with its mother was sent down to the New Jersey coast to spend the summer. Since then I have not seen her, but a letter received from the father during the early part of September last gives a very gratifying report of her condition at that time and I have no reason to suppose that it is any less satisfactory now.

Diagnosis.—Complete pyloric spasm with, in all probability, some hypertrophic thickening of the circular muscular fibers.

Salt in Pathology.—We have just passed through an epidemic of salt pathology theories, and now a new one turns up, this time apropos of cancer. Capt. Rost of the Military Medical Service, who has been investigating malignant cancers bacteriologically at the Rangoon Hospital for three years, announces what is believed to be an important discovery. He has found in both carcinomata and sarcomata cancers distinct germs of saccharomycetes, which can only develop when the natural chlorine in the tissues falls below the normal quantity. Following this clue, Capt. Rost devised a treatment to re-enforce the chlorine by special diet, enabling large quantities of common salt, which contains chlorine, to be absorbed. He has experimented with eight patients. One was completely cured and the condition of the others was improved.

ILLUMINATING GAS POISONING.

Report of Twenty-five Cases—Analysis of Cases. Treatment.

PAUL MONROE PILCHER, A.M., M.D.,

Assistant Attending Surgeon to the Methodist Episcopal Hospital, Borough of Brooklyn, New York City.

During a recent service as interne in the Methodist Episcopal Hospital in Brooklyn, my attention was called to the frequency with which this form of intoxication is met with, and the high percentage of deaths in the more advanced cases. In New York city during the year of 1898, ninety deaths were registered from this cause; in 1899, one hundred and two deaths; in 1900, one hundred and thirty-six deaths; and in 1901, one hundred and fifty-six deaths. A rather remarkable increase. In searching through medical literature, even the most recent, few contributions on this subject are to be found. In the memoirs thus far published the intoxication has been considered chiefly from a physiological standpoint and very little has been said as to the conditions actually found in a case which presents itself for treatment. It is the object, then, of this paper to consider the disease from its clinical aspect, and to suggest certain lines of treatment. Only the acute form of the poisoning will be discussed.

Through the courtesy of Dr. A. R. Matheson and Dr. G. R. Butler, attending physicians to the Methodist Episcopal Hospital, I am allowed to report the following cases, which occurred at this hospital during my service as interne.

Case I.—Mrs. B., age 26, Norwegian. Patient had gone to bed and accidentally turned on the gas. She was found the next morning unconscious, having been exposed to the gas for about ten hours.

On admission to Hospital, April 23, 1901, 9:00 A.M.—Patient in state of coma. Face cyanotic, lips purple, pupils dilated, extremities cold and cyanosed. Respirations 80 and stertorous. Pulse 140 and irregular. Temperature 100.4° F.

Physical Examination.—Showed small, moist râles over both lungs, most marked on left side. Given atropine sulph. gr. $\frac{1}{100}$ by hypo. At 10 A.M.: Median cephalic vein opened and 600 c.c. of very dark blood was withdrawn. Blood clotted very quickly. Following this an infusion of normal salt sol., 1,800 c.c., was given into the median basilic vein. Cupping of entire chest ant. and post. for 15 min. of 4 h. was begun and strychn. sulph. gr. $\frac{1}{30}$ q. 3 h. given. Following the in-

fusion the breathing became less labored, the pulse slower and stronger, and the cyanosis much less marked. At 12 noon: Temp. 102° F., pulse 124, resp. 50. The lungs showed fewer râles. At 3 P.M.: Respirations became worse, Cheyne-Stokes in character. General condition not so good. Regular catheterization q. 8 h. begun, Saline ℥xvj and Spts. Frum. ℥i by rectum given. Oxygen continuously. At 6 P.M.: Temp. had reached 103.4° F., pulse 140 and weaker, resp. 60. *Apr. 24:* During the night there had not been much change. The pulse remained of poor quality and about 140. Temperature dropped a little. Patient at no time had shown any signs of consciousness. During the day the pulse gradually became weaker and the respirations more labored. Temp. rose to 103.6° . Lungs showed a beginning edema. At 5 P.M.: A venesection of 300 c.c. of blood was done, followed by a *direct blood transfusion*. The blood was obtained from the arm of the woman's husband, who submitted without an anesthetic. Aveling's apparatus was used, and 480 c.c. of blood were directly transferred into the median cephalic vein of the right arm of the woman. It was found best to use the deep veins of the husband's arm. Immediate result: The respirations became rapid, full, and stertorous, the pulse stronger and fuller, the cyanosis faded somewhat. The whole picture was as if a change for the better had taken place. At 8 P.M.: Temp. 104.8° , pulse 140, resp. 44. Up to this time there had been no material change in the patient's condition, except that the pulse showed good quality, and the respirations had become less labored. An ice alcohol sponge bath was given. Following the sponge the patient's condition became much improved. Temp. dropped 2.8° , pulse to 130 and less bounding, breathing became much quieter; there was less cyanosis, and the patient opened her eyes when sharply spoken to. Later she resisted sponging out of the mouth, and showed considerable muscular strength.

Physical Examination.—Lower lobe of right lung showed many crepitant râles and slight dullness. Entire left lung showed rough, coarse râles and poor respiratory excursion. Urine analysis showed trace of albumen, hyaline casts, otherwise normal. 11 P.M.: Began to administer heated oxygen 10 minutes in every half-hour. Midnight: Temp. 101.8° , pulse 120, resp. 28.

April 25, 8 A.M.—Patient showed signs of increasing consciousness. Answered a question intelligently but very slowly. *Physical examination* showed consolidation of upper lobe of left

lung, and diffuse moist râles over entire right lung. Temp. 101° , pulse 100, resp. 28. Given calomel gr. ii, followed in 6 hrs. by mag. sulph. oz. $\frac{1}{2}$. During the night patient had taken a little nourishment by mouth. During day seemed quite hungry. Bowels moved once by enema. 4 P.M.: General condition much improved. Oxygen stopped. *April 26:* Marked improvement. Fully conscious. *Physical examination* showed consolidation of entire upper lobe left lung. Right lung cleared up. Temp. ranging between 101° and 100° F., pulse 100, resp. 128. *April 29:* Pneumonia gradually subsiding. Temperature slightly above 100° . Former medication stopped. Bland's pil. No. i. t. i. d. given; elix. tr. quin., and strychnine dr. i, t. i. d., p. c., hemboloids dr. 2, q. i. d. *Blood Examination.*—Red blood cells 5,210,000, leucocytes 7,750. *May 4:* Patient showed steady improvement. Temp. still ranging between 99° and 101° , pulse 80 to 90, resp. 24 to 26. Medication stopped. *May 12:* Temp., pulse, and respirations normal. Lungs entirely cleared up. *May 14:* Discharged cured.

Case II.—Mr. F., age 24, white. The patient supposed to have been exposed to the gas for about 10 hours, when found and hurried to the hospital.

On admission, May 15, 1901, 11:45 A.M.—Patient was in a condition of profound coma. Pupils slightly dilated, lips of fair color, hands cyanotic. Breathing stertorous but not rapid, pulse 88, temp. 98.4° . *Physical examination* negative. Administered strychn. sulph. gr. $\frac{1}{20}$, oxygen continuously, atropine sulph. gr. $\frac{1}{100}$. The possibility of alcoholic coma was considered and patient's stomach was freely lavaged and one pint of hot coffee was introduced. In about an hour this was vomited. It did not rouse the patient. *Blood examination:* Blood bright red. Red blood cells 5,100,000, leucocytes 21,500, hemoglobin 85 per cent. At 4 P.M.: Still unconscious. Temp. 101° , pulse 100, resp. 30. *Physical examination* showed small moist râles scattered diffusely over both lungs. Otherwise negative. Applied mustard pack to entire chest q. 4 h. for 20 minutes. Strychn. sulph. gr. $\frac{1}{30}$ q. 4 h., saline sol. ℥xvj and Spts. Frum. oz. i per rectum q. 4 h. were given. At 5 P.M.: Patient's condition much worse. *Physical examination* showed a slowly advancing edema of both lungs. Temp. 103.6° , pulse 120, resp. 44, stertorous and labored. Limbs rigid. 6.30 P.M.: Edema of lungs well developed. Temp. 105.2° , pulse 120, resp. 45. Face had become cyanotic, the body hot, frothing at the mouth. Every minute has a spasmodic convul-

sion of the whole body, the muscles becoming tense, and the entire body convulsing as if from pain. Gradually each subsiding and the patient becoming quiet. Venesection of 600 c.c. of blood. Blood very dark. Infusion of 1,400 c.c. of normal salt sol. Directly following this the pulse was hardly perceptible, but the convulsive spasms were less severe. One hour after the infusion, patient still having convulsions. The temperature reached 106.8° , pulse 140, resp. 48. Given ice alcohol sponge bath. Sod. bromide gr. xxx and morp. sulph. gr. $\frac{1}{8}$ per rectum to be repeated q. 4 h. p. r. n. First bath given at 9 P.M. *Temperature dropped to 103° , pulse 112, resp. 36.* Lungs showed a diminishing edema. The combined sedatives and bath acted very beneficially on the patient. The spasms became markedly less, and the pulse of better quality. Midnight: Temp. 102.6° , pulse 112, resp. 32. During the early hours the spasms were controlled by sedatives. *May 16, 3 A.M.:* Temp. 103.4° , pulse 120, resp. 30. Second alcohol sponge bath. Temp. dropped to 100.8° , pulse 97 and very good quality. Respirations 24 and much more quiet. Towards end of bath patient became more sensible and objected unconsciously to the cold. Has been passing large quantities of urine involuntarily. At 9 A.M.: *Physical examination:* Still diffuse moist râles over both lungs, most marked on right side. Slight dullness over base of right lung. Temp. 101.6° , pulse 104, resp. 24. *Blood examination:* Red blood cells 4,770,000, leukocytes 15,000, hemoglobin 70 per cent. Patient roused a little when spoken to, and vaguely answered a question. During the day he showed more signs of consciousness, but would lapse into stupor immediately after being aroused. Oxygen still given continuously. Temperature occasionally shot up suddenly, reaching as high as 104.6° , each time being lowered by alcohol sponge baths. *May 17:* Oxygen discontinued. *Physical examination:* Right lung showed a moderate amount of congestion, most marked at base. Slight congestion of left lung. All day showed increasing consciousness, but still was very stupid. Urinated involuntarily. Temperature ranged between 101.4° and 102.8° . *Blood examination* showed the red-blood cells to be 4,900,000, leukocytes 13,200, and hemoglobin 72 per cent. *May 19:* During previous two days condition did not change much. Patient was conscious but stupid. Still had no control over bladder and rectum. The temperature was continuously above 101° . Lungs showed moderate consolidation of base of right lung, and a few moist râles scattered over both

lungs. *May 23:* Temperature had gradually dropped until now it is normal. Medication stopped. Patient again able to control bladder and rectum. Lungs showed a few dry râles over base of right lung. *May 31:* Discharged cured.

The following cases will not be given in detail:

Case III.—Patient admitted with history of having been exposed to illuminating gas for unknown period of time. On admission: Comatose, cyanotic, pupils dilated. Temp. 100.4° , pulse 104, resp. 24. Oxygen was administered, and cardiac and respiratory stimulants given. Physical examination: Negative. In 12 hours patient became conscious! Two hours later physical examination showed a few large râles diffusely scattered over both lungs. Dry cups were applied. Edema of both lungs rapidly developed, patient again became comatose, and 6 hours later, i.e., 20 hours after admission, the temperature was 106.8° , pulse 150, and respirations 54. Three hours later patient died with edema of both lungs. Temperature reaching 109° .

Case IV.—Patient was overcome while working in an excavation in which illuminating gas was escaping. Recovered under simple treatment in a few hours.

Case V.—Patient exposed for about one-half an hour. Recovery uneventful in a few hours.

Cases VI.-XXV.—Of the twenty cases of illuminating gas poisoning which were treated in this hospital previous to July 1, 1900, five were cases in which the exposure was short and recovery was uneventful, and six resulted in death. The more serious cases mostly occurred during sleep. Of the fatal cases, four inhaled gas for at least eight hours, and one for about one and a half hours, before discovery and removal. The last patient was treated at home for 12 hours and was admitted with pulmonary edema well established. One patient died 18 hours after admission, four survived for about 30 hours, while one lived for five days; five of these deaths were due to pulmonary edema, and the remaining one to pneumonia. In three of the fatal cases there was return to consciousness; in the other three persistent coma. Of the other patients only one was unconscious for more than a few hours. In all the cases, with one exception, there was a rise in temperature and an increase in the rapidity of the pulse and respiration. In one case the pulse rate was high but the temperature was sub-normal. The respiratory movements were relatively more accelerated than the pulse. In the fatal cases the temperature kept pace with the development of pulmonary edema; in four cases reaching above

107° F., and in one case being 109.2° F. General muscular relaxation was generally present.

In the treatment of these twenty cases, cardiac and respiratory stimulants were largely used, and oxygen was given freely. Venesection was performed eight times in seven cases, and was usually followed by the intravenous infusion of a solution of the salts of the blood in their normal proportions. This expedient generally brought about a marked though often temporary improvement in the general condition of the patient. Faradism was applied to the pneumogastric nerves in one case. Dry cups were applied in three cases to lessen the pulmonary edema, and croton oil and magnesium sulphate were prescribed for five cases with a similar purpose. Nutrition was kept up by the use of nutrient enemata and feeding through a stomach tube. Alcohol sponges, cold packs, ice coils to head and abdomen, and cold tub baths were used to reduce the high temperatures. In one case a direct blood transfusion was done, but not until after 48 hours had elapsed, and the patient did not rally.

In considering the above cases, three types or classes present themselves for treatment. First: The *mild cases*, or cases of temporary asphyxia. Second: The *profound cases*, in which there is a general poisoning of the system. Third: The *cases in which edema of the lungs is already developed*. There is another set of cases in which the exposure to the gas is carried on until death results from a saturation of the blood with carbon monoxide hemoglobin. This may be called a true asphyxia.

I.—*In the mild cases*, where there is simply coma, a good pulse, normal respirations, and only a slight rise in temperature, after a short exposure, the treatment is simple. It consists of removing the patient to the fresh air, giving cardiac stimulants, inhalation of oxygen, and keeping the patient well protected from exposure to cold. These cases generally do well, and recover consciousness in from a few minutes to one or two hours.

II.—*The profound cases* in which there has been a longer exposure and treatment has been delayed. An analysis of these cases shows the following conditions to exist:

1. *Changes in the Blood*.—The carbon monoxide of the illuminating gas enters into combination with the hemoglobin of the blood, displacing the oxygen and forming a very stable compound, carbon monoxide hemoglobin. On this account the oxygen-carrying capacity of the blood is markedly diminished. The exact action of the

heavier hydrocarbons is not known. There is an increase in the number of red blood cells, and a moderate leukocytosis.

2. *Exhaustion of Nerve Centers*. Induced by prolonged action of the CO in the blood, and the lack of oxygen supply. Resulting from this there is: coma; disturbance of the vaso-motor centers, and disturbance of the respiratory, cardiac, thermic, sensory, and motor centers; decrease of blood pressure; possibility of inspiratory pneumonia.

3. *Loss of Muscular Tone*.—Due to the direct action of the CO on the body tissues. That the CO does act directly on the body tissues is shown by the long resistance of the body to putrefaction, after death from illuminating gas poisoning. This, however, is disputed by some physiologists.

4. *General Vascular Paresis*.—As a result of the exhaustion of nerve centers. Following this there is congestion of blood in the parenchymatous organs and other viscera, congestion of the venous sinuses of the brain and vertebral system, dilatation of the heart, and congestion of the lungs.

5. *Very Marked Tendency to Develop Edema of the Lungs*.—This is the most important factor of all, and is due probably to; *first*, the direct irritation of the CO and the heavier hydrocarbons on the lung tissue itself; *second*, the general vascular paresis; and *third*, the cardiac failure with dilatation of the heart, in which, according to some authors, there is a disproportionate weakness of the left ventricle, so that blood accumulates in the lung capillaries until transudation occurs. It will be seen in the twenty-five cases reported, six died with pulmonary edema. In four of these six cases, the patients returned to consciousness, but only for a short time, then lapsing again into unconsciousness and succumbing to a rapidly developing edema. Also in cases I. and II. edema of the lungs occurred, but was controlled.

6. *Development of Pneumonia*.—After twenty-four to forty-eight hours. This may be either following congestion and edema of the lungs, or of inspiratory origin. One of the above cases died from pneumonia, and in cases I. and II. pneumonia developed within forty-eight hours, although not of a severe type. Duformier reports a case of pneumonia following illuminating gas poisoning, in which the entire right lung was consolidated, the temperature, however, was at no time high.

7.—*Inability of patient to take food*.

TREATMENT must be directed against these factors:

1. The changes in the blood. It is not known

how the poison is eliminated, but it is known that the oxygen carrying agencies of the blood have been markedly diminished. New agents must be supplied. A Direct Blood Transfusion will do this, and should be resorted to early in the desperate cases. (Quincke, D. Arch. f. klin. Med. Bd. 27, S. 196; and Grawitz, Klin. Pathologie des Blutes, 2 auflage, 1902, S. 502.) If carefully practised by one experienced in the technique of giving intra-venous infusions, it is not a dangerous procedure. The rise of temperature consequent to the transfusion is easily controlled by cold sponging. Another valuable agent is the intra-venous infusion of normal salt solution. It acts beneficially in several ways. It helps to maintain the circulation, protects the nervous center, dilutes the poison, assists the elimination, and may be a factor in breaking up the CO-hemoglobin since through the medium of the water introduced a certain amount of dissociation of CO-hemoglobin must occur due chiefly to the oxygen dissolved in the water. (See Haldane, *Journal of Physiology*, London, vol. xviii., 1895). In Case I. intra-venous infusion was tried with but temporary benefit, while the effect of a direct blood transfusion was very marked and lasting. The usefulness of giving oxygen depends upon the method of its administration. To give oxygen by simply introducing a tube into the nose or mouth is only going half way. It should be administered by means of a cone or some contrivance by which the patient is compelled to breathe pure oxygen. Then in an atmosphere of pure oxygen, some of the oxygen will go into simple solution in the blood and so reinforce the small per cent. of oxygen capable of being carried in combination with the hemoglobin. There is no doubt, according to Haldane (page 457, l. cit.), but that it provides the tissue with an important supply of dissolved oxygen, and hastens the elimination of CO. During the convalescent stage, iron, and the various hemoglobin-building agents should be employed.

2. The exhaustion of the nerve centers, loss of muscular tone, and general vascular paresis with general congestion of the viscera, can only be attacked by the free use of stimulants in various forms. These include especially Strychnine, Digitalis, Atropine, Faradism to the Pneumogastrics.

3. The edema of the lungs. The treatment of this should be prophylactic as well as curative. In every fatal case of this group, edema develops. When the case is presented, if the condition is a serious one, patient in state of coma with pulse enfeebled and rapid, rise of temperature, increase in

respirations, and beginning cyanosis, treatment to prevent edema should be at once begun. The heart must be carefully watched and heart stimulants given freely. The bowels should be moved, preferably by *Olium Ricini* and salts. Diuretics are called for. Venesection is indicated and should be followed by an infusion of salt solution. At first indication of edema, warm mustard packs should be applied to the entire chest, alternating with dry cups. It is important also to change the position of the patient frequently. Should marked edema develop, more powerful methods must be used. Venesect again, increase the heart stimulation, induce free purging, apply wet cups. The effect of an ice alcohol sponging in this condition is very beneficial, for it reduces the excessively high temperature, strengthens and slows the heart's action, and quiets the patient. This is very well shown in both Cases I. and II.

4. The treatment of the pneumonia, if it develops, depends upon its severity, and the usual methods should be followed.

As to further treatment, the bowels should be kept open, the bladder regularly emptied, and feeding established by means of the stomach tube or nutrient enemata, or both.

In the third set of cases, i. e., those in which extensive pulmonary edema is already developed, the treatment is almost useless, but should be carried out as outlined under the consideration of the Profound cases.

CONCLUSIONS.

I.—The toxic effects of inhaling illuminating gas are due primarily to chemical changes produced in the constituent elements of the blood, this being a substitution of carbon monoxide hemoglobin for the oxyhemoglobin, so diminishing the supply of oxygen to the tissues. Further, that the direct cause of most of the symptoms is the diminished per cent. of oxygen contained in the arterial blood supplying the central nervous system (compare Haldane, p. 443).

II.—If the above be true it is a condition in which oxygen should be administered pure, in order to force it into simple solution in the blood and so reinforce the remaining oxyhemoglobin.

III.—For the purpose of supporting the circulation, diluting the poison, assisting its elimination, and its possible influences in breaking up the chemical combination of the CO with the hemoglobin, a copious infusion of salt solution should be administered. Such infusions should be reinforced in the more severe cases by a direct blood transfusion, whereby an increased supply of oxygen-carrying hemoglobin is obtained.

IV.—To control the tendency to acute dilatation of the heart, a free use of cardiac stimulants should be early resorted to.

V.—Edema of the lungs is the chief of the secondary sources of danger and must be constantly watched for and every possible measure taken to guard against it.

CHRONIC PERITONITIS.

At the fifty-third annual meeting of the Amer. Med. Assn., Dr. A. G. Nicholls read a paper on some rare forms of chronic peritonitis, especially calling attention to a peculiar form of chronic peritonitis of progressive development. According to the nature of the exudation produced chronic peritonitis (diffuse) can be conveniently divided into three main forms:

1. *Chronic Exudative Peritonitis*, in which there is a considerable outpouring of serous, sero-fibrinous or fibrino-purulent fluid, with loose plastic adhesions.

2. *Chronic Exudative and Adhesive Peritonitis*, presenting less exudation, but with somewhat numerous and firm adhesions, often leading to sacculation of the contents.

3. *Chronic Hyperplastic Peritonitis*, in which there is sero-fibrinous or fibrino-purulent exudation, but more or less generalized adhesions are the rule, together with the formation of firm nodules or continuous sheets of hyaline fibrous tissue. This third form is much rarer than either of the other two. Anatomically speaking, the cardinal features of the disease are the production of more or less exudation into the abdominal cavity and the production of fibrosis leading to the formation of sporadic elevated nodules on the peritoneal surface or to a continuous fibrous membrane of considerable thickness and cartilaginous texture on the various viscera. He emphasizes the similarity in appearance between the simple and the tubercular forms of hyperplastic peritonitis, pointing out as well a more or less localized form in which a tumor-like mass is produced. Complications or special symptoms may call for appropriate remedies, but the treatment is essentially surgical. In discussing the paper, Dr. Welch mentions the occurrence of richly vascularized, thin layers of new connective tissue, particularly on the pelvic peritoneum, associated with small hemorrhages and blood pigment. This condition is analogous to chronic hemorrhagic pachymeningitis, the morbid process being of the same general nature in both affections.

CAUSES AND RELIEF OF THE SUMMER MORTALITY AMONG BROOKLYN CHILDREN.

BY C. LE GRAND KERR, M.D.

Each year, the odium excited by a mortality among children, which is altogether too high, is heaped without measure or stint upon the Brooklyn physicians. We are charged from within as well as from without our ranks, with a carelessness which is nothing short of criminal.

To stimulate the efforts of those of greater talent, and to interest every member of the profession in this borough in an endeavor to correct the conditions, which make these accusations possible, even though unjust, but mainly to excite that higher interest, which will result in the saving of the lives of many of the little ones, this inquiry was undertaken.

Late in May, 1902, a personal letter was sent by the writer of this paper to 150 physicians in this borough. Request was made that records be made of all deaths and serious illness threatening death, occurring in their practice during June, July, August and September, in children under five years of age. Special care was asked that the trouble be traced to its incipency, and careful note made of the influence or bearing that the food and its preparation, or the water had upon the etiology of the disease. An effort was made to cover all sections of the borough. The very generous response of my colleagues is the one thing, which has made this paper a possibility.

We are confronted by one great fact; that the death rate among children in Brooklyn is constantly greater in proportion than in Manhattan.

Naturally, the first inference would be that the geographical setting of the two boroughs might be a remote cause; but when we examine, and find practically the same kind of soil, the same prevailing winds from the northwest, and a hardly appreciable difference in temperatures, the idea is untenable. We might not be able to say so much for the equality of the political setting, and in our dust-laden streets, we find one factor in the causation of disease. While we must all recognize the dangers from this source of infection, I believe that they are overestimated. We demand a more rigid public hygiene, at the same time neglecting the more important personal one. I cannot agree with those who attribute the deaths of infants from diarrheal disorders, largely to the condition of our streets, or in fact at all, for during 1901 and 1902, 46.07 miles of modern

pavement was laid against 8.97 miles during 1898 and 1899, and with no decrease in the death rate from diarrheal disorders.

The suspicion of the public and physicians alike, is directed to the water supply at nearly all times, but especially in the summer months, when the diarrheal disorders prevail. There can be no question as to the conveyance by water, of certain of the diseases known as diarrheal, but eliminating typhoid, those which affect children are rarely traceable to polluted water.

In point of dwellings, borough for borough, Brooklyn has a distinct advantage. The houses are larger, in better sanitary condition and less crowded than in the sister borough. As a factor this should, and undoubtedly does, materially aid in decreasing the mortality.

For the purposes of brevity, all diseases figuring below five in the returns, were eliminated. Returns then stood as follows:

Acute gastro-enteric infection	382
Acute bronchitis	43
Rubeola with broncho-pneumonia	42
Convulsions from dentition.....	14
Nephritis	5
Malarial fever	5
Dysentery	5
Acute broncho-pneumonia	129
Diphtheria	42
Tubercular affections	31
Gastritis	6
Scarlatina	5
Marasmus	5

We might still further apply the process of elimination, and disregard the returns of convulsions due to dentition, diphtheria, scarlet fever, malaria and the tubercular affections, on the ground that all is being done that can be done in the way of prevention under present conditions.

We might make an exception of diphtheria, because of the fact, that while the beneficial results of the use of anti-toxin is established, the proper dosage is not.

Of the remaining diseases, all five cases of nephritis were post-scarlatinal, and as this sequelæ was the danger point, cases were classed as nephritic instead of scarlatinal.

Of the six cases of gastritis, two were caused by the ingestion of ice-cream soda, one from indigestible food, one from well water, and the remaining two were caused by the irritation set up by ammonium chloride, given in a cough mixture.

Marasmus.—All of the cases were recognized early. One child had been prematurely born and two were illegitimate. In all of the cases the surroundings were poor and the food condensed milk (in two instances having a proprietary food mixed with it).

In the cases of dysentery (acute ileo-colitis), the cause was traced in but one instance. In that the child had eaten some leaves and the trouble only cleared up after they had been passed by the bowel.

The forty-two cases of Rubeola complicated by broncho-pneumonia will receive attention later on in this paper. Thirty-six of the broncho-pneumonias, however, followed a well-defined exposure to cold.

Acute Bronchitis.—Twenty-five followed a change from heavy to light underwear. Nine followed other cases with which they were in close contact and without known atmospheric exposure. Nine unaccounted for.

Acute Broncho-Pneumonia.—We will examine this in more detail on account of its prominence in the list: 68 occurred under one year, 37 during second year, 12 during third, eight in fourth, and four during fifth year. As regards the months: 82 occurred in June, 21 in July, 10 in August, and 16 during September.

The disease was primary in but 39 cases. In 51 it was secondary to pertussis, in 23 cases followed an attack of bronchitis, in two it was due to direct exposure, and was secondary once in each of the following diseases: Diphtheria, varicella, acute ileo-colitis, influenza and gastritis. The 42 extra cases complicating rubeola, have already been referred to.

Acute Gastro-enteric Infection.—This affection heads the list in point of numbers, therefore in importance. The diet in these cases was as follows: Breast fed, 2; mixed diet with milk, 14; (of these 14, cows' milk was used in five, condensed milk in nine), proprietary foods, 51; modified cows' milk, 36; condensed milk, 273; not given, six.

Of the first 102 (that is, excluding the condensed milk and the unclassified cases), 42 were caused not primarily by the food, but by its improper preparation, either in the disproportion of ingredients, or its careless handling, without the degree of cleanliness necessary.

A glance backwards reveals this fact: that of the cases reported, 475 were reasonably preventable, and this out of a grand total of 714.

It is also clear that a large proportion of the

475 cases were not only reasonably preventable, but absolutely so.

By what means then may the reduction be made? Three suggest themselves: (1) Regulation of the patient; (2) education of the public; (3) the family physician.

Regulation of the Patient.—The figures submitted reveal very clearly the necessity of a more rigid supervision of all cases of pertussis.

The frequency of broncho-pneumonia, as a sequelæ to this disease and its deadly nature when so complicated, entails an obligation which cannot well be overlooked. It is not enough to require that it be reported; active measures should be taken for its proper control and the sequestration of the patient.

How to restrict the diseases of the air passages has gradually become a solution of this question: how to restrict expectoration.

The list of diseases which might be limited and greatly lessened by measures aiming to control this unsanitary and disgusting habit is a long one.

The present sanitary movement is toward the destruction of all sputa.

The coming one ought to be one for the more prompt disinfection of pocket-handkerchiefs, and against the unsavory habit of using the handkerchief of the parent for the convenience of one, two or even more children.

The benefits derived from a properly exercised public hygiene are seldom appreciated by the individual. That, however, cannot be taken as a reasonable excuse for inactivity of those in authority, as is so often done.

Like the clear note of the clarion, comes the demand for a wholesome, *clean* milk supply. Robbing the milk of its cream and concealing the fact is a source of injury as well as injustice, but a rich milk teeming with bacteria may be equally as harmful. Some account should be taken of the amount of dirt and bacteria in the milk supply. It has been estimated that in New York's milk supply for one day there is about 600 pounds of dirt, mostly cow dung and hair. It should not be left to a milk commission, with no authority back of it, to cope with this pressing need; it is a question of public necessity and health. Give us a good, clean milk supply, and the necessity for the extended use of condensed and other milk preparations is greatly reduced.

One thing should be insisted upon to-day, not in a month from now only, but *now*; that is, that all milk intended for consumption in this city, be

kept at a temperature below 50° F. from the time of milking to the time of delivery.

The Education of the Public.—Much of this will essentially devolve upon the family physician, because he it is who usually come into relationship with the case, when most can be done in the line of prophylaxis.

There are many lines along which this education is needed, but to confine ourselves to the needs as revealed by these returns, we find that the promiscuous giving to young children of that uncertain concoction known as ice-cream soda, is a source of danger and suffering.

Measles.—This disease which is looked upon as a joke in many households, shows us a return of 36 cases of broncho-pneumonia following it, because of direct exposure. The public needs to recognize the fact, that the dangers of a secondary broncho-pneumonia are great, especially in very young children.

Out of 102 cases of acute gastro-enteric infection, in 42 the preparation of the food given was defective, and trouble ensued. A proportion of these were due to the uncleanness in handling, and all could have been avoided if the impression of the great importance of scrupulous care and cleanliness had been strong enough to stimulate and secure the mother's co-operation.

There are two fallacies that are well-grounded in the public mind, and which may take much patient, persistent work to eradicate: one, that a fat baby is always a healthy baby; the other, that the more food that a child takes the better it is. These two false ideas are the cause of much sickness and some deaths.

Some might ask with reason, if a campaign of sanitary education for the public is of any utility. An example of its possibilities is given to us in the case of Michigan where such a campaign was instituted in 1891, especially against tuberculosis. The result is a progressive decrease in the death rate, averaging 11 per cent. less in each year than it did in the preceding years.

The Physician.—Several years ago, the late J. Lewis Smith, in autopsies upon several infants, found that where they had died presumably from bronchial affections, with gastric symptoms, the deaths were in most cases attributable to the irritation set up by the ingestion of ammonium chloride. I have seen many cases where this salt was used in infants, and the subsequent gastric irritability could be accounted for in no other way,

than that the salt was at fault. I have given up its use entirely in infants.

It is not out of the way here to refer, as we have at length elsewhere, to the frequency and danger of broncho-pneumonia following pertussis and rubeola.

We must refer also to the nine cases of acute bronchitis, following exposure, not to the elements, but to other cases of the disease. Every child with an acute bronchitis should be partially isolated in a room of even temperature, as much for its own good as for the protection of other little ones, for we recall that 23 cases not vigorously treated, terminated in broncho-pneumonia.

Despite their many faults, the various infant foods enjoy a considerable popularity. "Horlick's Food," "Mellin's Food," "Malted Milk" and "Hawley's Food" all represent combinations of flour, treated with diastase until the starch is converted into maltose and dextrine. "Ridge's Barley," "Robinson's Barley" and "Imperial Granum" are combined flours with the starch partly changed. "Nestlé's Food," the "Swiss" foods and "Gerber's" are condensed milk, sweetened and combined with dextrinized flour. "Carnrick's Soluble" is mostly carbohydrates; "Lacto-preparata" about the same; they are all deficient in some particular as infant foods.

We need to recognize that this deficiency more than outweighs their ease of preparation.

The already large and increasing number of schemes for the home modification of milk, while aiming to relieve the situation, has been the means of complicating it. It requires longer and more patient study to properly understand these modifications than the average practitioner has time to give.

It is so easy to say, "Give the baby some condensed milk" and the public is so ready to accept that advice, entailing as it does no trouble, that we find the giving of this makeshift for mother's milk, on the increase.

As long as it does, so long also will the death rate increase among infants. When used it needs fortification with cream.

The need has been for simpler methods, and these were supplied by the publications of Crandall, Northrup and Chapin in 1901, based on the principle that in all milk, within reasonable limits, the top nine ounces of cream and skim milk from a quart contains fat three times the proteid. Between nine and 15 ounces we can get fat anywhere from two to three times the proteid.

After all, pediatricists have no secrets in infant

feeding, we may arrive at the conclusion quicker than one of less experience, but it all reverts to this axiom: Begin on a weak mixture and gradually find the point of tolerance, and do not do it too rapidly.

With certified milk upon the market, insuring its cleanliness, the cows' milk so modified, should be given *raw*. Sterilization and Pasteurization both injure the milk as a food. Each method increases the tendency to scorbutus. Just what change takes place the chemists have not told us, but we do know that kept upon it long enough, a child will eventually develop scorbutic symptoms, as beading of the ribs, flabby muscles, bleeding gums, etc. In children so nourished, I have found some of these evidences present in over 60 per cent.

To recapitulate, our chief needs are: (1) A rigid supervision of all cases of pertussis; (2) a recognition by the public of the dangers of a neglected case of measles; (3) cleaner streets; (4) More care in the preparation of the infant's food; (5) and by far the most important of all, a good, wholesome, clean milk supply, on which the physician can absolutely depend for his modifications.

R. Jones, F. R. C. S., Edin., states in an address on "Certain Principles and Methods in the Surgery of the Paralyzes of Children" (*The Lancet*, February 14, 1903) that he has operated upon patients from twelve months to twenty years of age. A large number of these were so bad that they had never attempted to place one foot before the other. Some were structurally flexed (contractured) at ankle, knee, and hip. A most helpless youth, aged 20 years, with one limb across the other, was able in six months to stand erect and to walk with sticks, and twelve months later he was able to move his limbs north, south, east and west with hardly an appreciable jerk. He remarks that success in an ancient case, where so much has to be unlearned and where the mechanical stage offers so much difficulty, proves the soundness of the principles he endeavored to expound. It is logical to infer that if old neglected cases are amenable to surgical education, the prognosis should be very hopeful in the young.

RANDALL'S ISLAND HOSPITAL.—Plans have been filed for the erection of a two-story brick hospital on Randall's Island opposite One Hundred and Twenty-third Street. The estimated cost is \$135,000.

THE ETIOLOGY OF INSANITY.

BY R. C. F. COMBES, M.D.

Read before the Brooklyn Medical Society.

SINCE the time when insanity was looked upon as the work of Satan and treated accordingly it has been the effort of mankind to enlighten themselves as to the condition, and to-day there are comparatively few who do not believe that it is a disease, which under proper care and treatment can be cured in a certain proportion of cases. Of all of the essentials in the successful management of this disease, as with all others, the most important one is a correct idea as to its cause or causes. Many of our brightest men have devoted the best part of their lives to the study of this subject, and to my mind are partly in error. The physician, as well as the layman, often gives overwork, disappointment in love, loss of friends, etc., as causes of this disease. It is true that such reasons as given could act in a contributory manner, but certainly not as a primary cause. There is something deeper, as the one and primary cause of this disease, and while I will not claim that I have discovered anything new in particular on the subject, I do claim that I shall be able to correct an error which has existed in the minds of some of my professional brothers. I shall take some of the more prominent causes as given by most of our authors and endeavor to show that they are not the true primary cause of the disease.

Heredity probably stands first on the list. I ask, what is this? As generally understood, it is a certain inherited taint or peculiarity of construction or arrangement of brain cells or neurons which are handed down from generation to generation. This theory I can hardly believe, because if it were true we would have in the disease a condition similar to dementia, imbecility, or idiocy, with defective reasoning powers, and the symptoms would continue without remission or intermission, and periods of excitement and agitation would be infrequent or wanting. We must keep in mind that insanity is very common with persons who have the brightest intellects, but by some means the action of the brain cells or neurons are interfered with and abnormal thoughts are substituted for normal ones; and as the very essence of the definition of the word insanity is an alienation from the normal, it is essential that a person must be comparatively normal before he can become insane. If a person inherits a mental defect such as idiocy he was never nor-

mal and can therefore never become insane. He can still have other mental defects, but not a true insanity. Next in prominence comes alcohol as a cause of this disease. This seems plausible, but as we have insanity without alcohol we must look further. We have still further an endless number of given causes which neither time nor space will permit me to mention. Of the causes as given above the first seems the most reasonable one, except that it gives a wrong impression.

In the place of saying that heredity is the cause of this disease we should say that such a person has inherited a weakness of, or inefficiency of, certain organs of the body. To my mind this defect is not located in the brain itself, but in some one of the other organs of the body, which, failing to properly perform their functions, thus fail to properly eliminate certain toxic elements from the blood which so act upon the brain cells or neurons as to cause them to retract when they should expand, or *vice versa*, and thus disarrange them so that they fail to properly perform their functions. For this reason I believe that toxic influences should take the position as the very first and most prominent and common cause of this dread disease.

We all know that this human body is a vast laboratory for the manufacture of poisons of all descriptions. We know that it produces urea, indican, acetone, diacetic and oxy-butyric acids, as well as many other articles. We know that it produces certain septic poisons, the effects of which are exhibited in certain forms of insanity, *e.g.*, the puerperal state and typhoid fever.

Under normal conditions we either do not manufacture or excrete all of these articles, and they give us no trouble; but we are not all so fortunate as to possess normal bodies and organs, and just here is where our inherited defects give trouble.

The man who has a sluggish liver suffers accordingly, and other organs with defects leave their trails of misery. I do not undertake to say which of the organs is the defective one which manufactures or fails to eliminate the article which is so disastrous as to produce insanity.

We all know that we produce urea and excrete it, and if the kidneys fail, know the one and only result. I have been led to this belief and have had my opinion strengthened more, probably, from our ability to produce a similar train of symptoms to those of insanity by the administration of certain drugs, *e.g.*: If I wish to produce temporarily a case of acute mania, alcohol will do it, and will continue the symptoms as long as I

keep up the stimulus; we have the elation, rapidly changing thoughts, hallucinations of sight and hearing, as well as the disturbance of other special senses. It is true, it does not affect all in the same way; it may produce a stuporous condition, as met with in other forms of insanity. Again, by the administration of cannabis indica we can place a man in a veritable heaven and earthly bliss with rapid and changing thoughts and a flow of eloquence far from the normal. Again, large doses of nux vomica produce mental agitation and depression, feelings of impending danger and morbid fears of all kinds.

Bromides taken for a long time and in large doses first produce bromism, and if continued dementia. In other words, I produce a true insanity with this one potent drug. Take now the article cocaine and I will again produce a dementia of a slightly different character, but well enough marked to state with a degree of certainty that it is a true dementia. Ergot, if long continued will so contract the involuntary muscular fibers of the coats of the arteries as to interfere with the nutrition of the brain tissue, and as a result we have a dementia, organic in nature. Absinthe, a preparation of alcohol produces similar results. Belladonna and chloral will both produce a similar condition if continued for a long time and in large doses. Mercury, lead and many other articles, which I have neither time nor space to mention, will produce similar results. By the administration of the different articles as enumerated above I cannot only produce acute, but the chronic forms of insanity, and also the exacerbations of the disease, by increasing or decreasing the dose.

It seems to me that as these conditions can be so readily produced by the administration of articles from without, it is but logical to believe that a similar train of symptoms produced without them must be caused by articles of similar potential power, and that they must be produced within the body; and, as we have no means of discontinuing the production or administration, the symptoms are continued.

I think we can account for the periods of excitement, agitation or depression from either the temporary inactivity of the excreting organs or the overactivity of the secreting organs at the time, *e.g.*: During sleep our organs are liable to be more sluggish than during the hours of wakefulness. This perhaps accounts for the extra depression of melancholiacs and the extraordinary number of morning suicides.

The toxic theory, I think, also accounts for the

fact that the disease is more liable to occur at the critical periods of life, viz.: pubescence, adolescence, child birth, lactation, pregnancy, menopause, old age, etc.

As an explanation of the cause of various forms of insanity, I have to submit that many poisons have a widely different effect upon one person from that of another; so with the particular poison which produces insanity; it affects one person differently from another, *e.g.*, in one person it produces a swelling or retraction of the protoplasmic prolongations of the neurons, as the case might be, and a consequent train of symptoms, and when an extra amount of poisonous stimulus is applied gives rise to periods of excitement or depression. In the prolonged forms of insanity such as paranoia, it would seem to me that such a condition is produced not by an excess of poison, but by its effects upon some particular set of cells.

As to the causes of the forms of insanity where there are coarse brain lesions or pathological conditions such as organic dementia, I believe that the continued action of the poison upon the cerebral tissues other than the brain cells so interferes with the nutrition as to cause them to break down and thus disarrange the cells. I further believe that this same poison or a similar one is the cause of many forms of disease of the nervous system, *e.g.*, sclerotic changes, epilepsy, tabes, etc.; but the poison attacks the cells or neurons in a different location.

In the special form of tissue degeneration in the brain known as general paresis, I believe that this poison (if not the same) is a very close relative to the specific one of syphilis, or is aided in its work by it, and, in case this element affects or attacks certain parts of the brain or cord, we find mental symptoms almost wanting, but the disease claims the victim just the same.

I have seen, within the last two years, two well-marked cases of general paresis ending in death, with very few, if any, mental symptoms; this leads me to believe that the same poison did the work, but that parts of the brain were involved which did not interfere with mental operations.

Abnormal thoughts are common in health under the influence of stimuli of many kinds, but do not remain after the physiological effects have passed away.

Certain persons can take alcohol almost *ad libitum* without producing an abnormal idea; others can go to sea without feeling any unpleasant sensation from the motion of the boat; in other words, one person has a power of tolera-

tion which is wanting in another, and so I claim that one person can manufacture enough poison to make another insane, but is able to carry it without effect. In all probability his tolerating powers are greater, or he has the power of eliminating it so that it has no bad effect, while the other suffers accordingly.

As to the production of certain forms of insanity by certain varieties of poisonous elements, it is only necessary for me to say that we are all familiar with the different effects produced by the same drug, if given to different people, and again, the length of time to which one is subjected to the influence of a poison sometimes reverses its effect, *e.g.*: I now have a case on hand which when he first came to my attention, four years ago, was a true case of agitated melancholia, but is now just as decided a case of acute mania; he is elated, talkative and very decidedly happy. The old adage "Falling drops wear rocks" can well be applied here. A man can have a veritable fortress, so far as brain and nerve constitution is concerned, but if the drops continue to fall frequently enough and drop on the right place they cannot fail to do the damage, especially if the drops are from a great height and laden with something stronger than water.

Brain texture and neurons are delicate structures, and I wonder how they stand the many attacks which are made upon them.

Another error which the physician is liable to make in the study of cases of insanity is taking the result of a disease as its cause. *e.g.*: Masturbation or sodomy is frequently given as a cause of this disease. While it is true that those evil habits act in a slight causative relation they are much more liable to be the result of the disease. In other words one may get the cart before the horse.

The late Prof. John C. Shaw vehemently denied that insanity was ever caused by masturbation, and it is my opinion, if insanity could be caused by masturbation primarily, a large majority of the people of the world would be insane.

I think it is the generally accepted opinion of the profession that any act on the part of a person which tends to lower the physical and mental status of a person would contribute to a derangement of the mind.

I have been looking for something more definite than the hundred and one causes as given by authors in general and hope I have found it. One author whom I have consulted gives auto-intoxication as a cause in thirty per cent. of all cases of insanity, others less, but none more. I

place it much higher, I should say that eighty per cent. would be nearer the mark. It is common to hear the laity or physician say that a case of insanity is inherited. We should say that they inherit a weakness or tendency to the disease or, if my theory is correct, inherit a tendency to the manufacture of toxic elements, in the same manner as certain persons inherit a tendency to the formation of calcareous deposits in their joints or worse still, stones in the kidney or elsewhere.

We in all probability take into our bodies about the same approximate amount of the sulphate of lime in the water which we drink, but some of us are able to eliminate it, while others are not so fortunate. In opposition to the theory that religious excitement, over-work, business cares and the like are causes of this disease, I have to say that they are only secondary or contributing causes.

If a person goes to church or business and takes a healthy brain, and blood that is not charged with poisonous elements with him, it makes little difference how much the excitement or how great the strain; he would only suffer a fatigue.

If such causes were primary in nature our Wall street brokers would go insane in a short time.

That some such poison is produced, and is a cause of this disease I am practically certain. I have sometimes thought hereditary syphilis a factor, but to prove such an idea is very difficult.

It is an old story that scrofulous constitutions are due to an inherited or modified syphilis and if that is true we have just as good grounds to claim that it is a cause of insanity and if that theory were true my toxic idea could in that way be supported to a certain extent:

I wish here to say that this paper is one entirely of theory based upon close observation. The idea is thrown out with the hope that brighter minds may take it up, and eventually solve this great problem. I trust, if my position is not tenable, that the discussion which is to follow will so thoroughly explode my theory, that I may need give it no further thought, and that some other and better explanation will be given.

The West Virginia State Medical Association.—

This Association will hold its thirty-sixth annual meeting at Charleston, W. Va., May 26, 27 and 28, 1903. The scientific, business, and social programs will be of unusual interest and attraction this year. A representative of the American Medical Association will be present. It is hoped that every member who can at all do so will attend this meeting. Titles of papers, to appear on the program, must be in the hands of the Secretary before May 11, 1903.

PROCEEDINGS OF SOCIETIES.
THE MEDICAL SOCIETY OF THE COUNTY OF
KINGS.

STATED MEETING, MARCH 17, 1903.

The President, CHARLES N. COX, in the Chair.

I. PAPER: *Illuminating Gas Poisoning.* By
DR. PAUL M. PILCHER.

DISCUSSION.

DR. E. H. BARTLEY: I am very much indebted to the Doctor for his very full description of these cases. Certainly it is a very valuable contribution to our knowledge of the subject, and any one who has had experience with that number of cases certainly is authorized to speak on the subject.

While there is nothing very new in the symptoms described, still they are emphatic because of the number of cases, and represent practically what is seen in such cases, so far as my own experience has gone, which is limited to perhaps eight or ten cases all told.

The cases that I have seen have been mainly of the lighter form—not the grave. I have always, in my own mind, divided the cases into two categories, instead of the larger number into which the author of the paper has perhaps properly divided them. These are the cases of simple asphyxia or asphyxiation, and the cases of intoxication or prolonged contact with the gas, leading to a toxemia and, as he has fully explained, the formation of CO-hemoglobin. Some experiments that have been made seem to show that when two-thirds of the oxygen-carrying power of the blood has been destroyed by this means, the patient usually succumbs, so that for the absorption of this amount of CO, of course we have several factors to take into consideration; one the length of time to which the exposure has been continued, and the amount of gas in the air of the room.

We have sometimes cases of what we might call chronic CO-poisoning, where there is a small leakage in the room, or where there is a leakage, as Pettenkoffer has shown, into the cellar, which pervades the house and finds its way into the blood. Sometimes the leak may be entirely outside the walls, especially in the winter time when the surface ground is frozen and impervious to gas, it may diffuse horizontally into the cellar and up into the rooms, giving rise either to acute or to chronic poisoning. The exposure in such cases

may be quite long, days or weeks, and the hemoglobin very slowly and very gradually changed into CO-hemoglobin, and in this way gives rise to a chronic form of poisoning that the Doctor has not mentioned in his paper.

I am reminded by the discussion of some experiments that I tried some years ago about the time of the excitement on the subject of the introduction of water gas. You remember there was quite a furore over the dangers that we would run if water gas were introduced into this city. It was introduced in spite of the furore. At that time there was quite a good deal of experimentation going on. I made some experiments with dogs, and I remember distinctly in all these cases there was decided frothy mucus thrown out from the mouth, with large mucus râles. I could not make out the crepitant râles, whether there was a true edema of the lungs, but there was a very great deal of salivation and the saliva was always frothy, and, therefore, probably came from the bronchial tubes. This was characteristic in all the dogs experimented upon.

Another thing that I noticed was, that when the dog was only exposed for a short time to a large volume of a mixture of illuminating gases with the air, that recovery was quite complete in the course of a few hours' exposure to the air, but when the dog was allowed to remain four or more hours in contact with the gas, the changes in the blood were so profound as to prevent complete recovery for at least two or three days.

The singular persistence of the symptoms in this more slow, or semi-chronic, poisoning is explained very easily by the fact, that the CO-hemoglobin will not easily be decomposed by free oxygen; in fact, it resists this decomposition very firmly. I have always supposed that the administration of oxygen was of very little value in true gas poisoning. I can easily conceive that if the oxygen could be forced into the lungs under pressure, that it might possibly be made to pass into the blood, and go into solution in the blood plasma. I hardly see how the simple filling of the lungs with pure oxygen at atmospheric pressure will put it into solution. Oxygen is not very soluble in blood plasma, at atmospheric pressure, and very little of it will go into solution.

Without going further into the consideration of that subject, it seems to me that the administration of oxygen is of very little use. At any rate, while I would not say that we should not use it, I would say that we should not depend upon it. The doctor in his paper has, perhaps, emphasized this fact sufficiently, that while he used the oxy-

gen in some of his cases, he did not by any means depend upon that for the relief of the condition.

I have had no experience with transfusion of blood. His experience has certainly been rather flattering, and the experience of others recommends it. The saline infusion I can conceive would be of some benefit in dilution. How much benefit it would have in decomposing the CO-hemoglobin I do not know from absolute experience, but I should think not a very great amount. The dilution of the blood, the stimulation of the heart and the elimination produced by the saline solution, are the chief benefits to be derived by this procedure. The spectroscope is one of the easiest and safest means of making a provisional diagnosis and prognosis in such cases. It is rapid and requires no special skill. By means of the spectroscope one gets the peculiar absorption bands of the CO-hemoglobin, which differ but slightly from those of oxyhemoglobin, but on adding a drop of ferrous sulphate, ammonium sulphide, stannous chloride or any other reducing agent the CO-hemoglobin is not reduced—the spectrum remains almost permanent in spite of the reducing agent, thus showing a sharp distinction from normal blood. We can use this method approximately quantitatively, and form a very good idea as to the amount of saturation.

I may relate one case, where the spectroscope came in well in the examination of the blood for a life insurance company. It was the business of this man to go down into a pit at a gas works and regulate a certain stop-cock. On a certain day he was found at the bottom of the pit, dead. The insurance company, which carried the accident policy on his life, refused to pay the insurance, because they claimed that the man evidently died from gas poisoning, and that it was his own fault that he did not turn off the gas, and, therefore, it was a suicide, and not the result of an accident.

By the other side it was claimed that his nose was broken, and, that he fell and struck his nose on some one of the iron fittings, broke his nose, and this stunned him, so that he could not get out, and, therefore, it was an accident. On examination of the man's blood, I found the blood was thoroughly saturated with carbon monoxide.

2. Paper: *The Medical Witness*. By DR. ARTHUR C. BRUSH.

DISCUSSION.

JUDGE WM. B. HURD, JR.: I do not quite understand how I came to be invited to open this discussion, but the order of scientific business, together with the explanation of the Chairman,

enables me to discern the plan. First came the topic of "Gas Poisoning," and then "The Medical Witness," and the Chairman was prompt to explain notwithstanding my juxtaposition with Dr. Brush, that a medical witness never gave you any gas. Now the inference seemed to be inevitable.

There is a saying that a "layman between two lawyers is like a fish between two cats." No one has attempted an aphorism that will point out the position of the lawyer discussing the question of a physician as a witness in a company of doctors.

Medical witnesses are all right when they stick to facts. Medical witnesses are like all other witnesses when they go into the domain of speculation.

Some men in your profession have become professional witnesses. They are the men who look upon the practice of medicine simply as a means of making money, to whom the professional aspect, the literary aspect, the scientific aspect of the profession is "as sounding brass or tinkling cymbal."

I recall one gentleman, a witness before me, who testified that he had been a witness in negligence cases in one year in forty-three cases against a railroad company, and these forty-three cases were brought by the same attorney. The railroad company won forty out of the forty-three.

I will explain one or two cases, that will point what I mean, when I say, that when a medical man sticks to facts he is as competent and reliable a witness as there is, but when he goes into the domain of speculation, he meets the same thing every man meets who is speculative.

One of the most instructive cases that ever came before me was the case of Mrs. Place, who you will remember was indicted and convicted of the murder of her stepdaughter. The girl was found on the bed with the clothing all off, pillows down upon the floor, fully dressed, no disarrangement at all of her personal clothing. She was about twenty-two years of age and of strong build. The evidence in the case was entirely circumstantial. No eye saw the murder done, and there was no fact which was proven by direct evidence, except the fact of the death. Now, it was at that point that the medical witness was put before the jury, and it was the medical evidence which was the most convincing and powerful effect in the case. That testimony was delivered by a man now dead, but he was one of the clearest witnesses I ever heard. He described the body as it lay upon the bed; the characteristic color of the face following suffocation, that the lips and the

eyes were scarified as if burned by some corrosive substance; that the autopsy developed that all the organs of the girl were entirely normal, except the lungs, and they showed the suffused condition consequent upon suffocation.

There is a case which illustrates just the other point, how unreliable, how uncertain expert testimony is in one respect, and to which on general principles I am opposed. I take no stock in the handwriting experts. The latest case of handwriting expert witness evidence is this: A man died, having accumulated a very large estate. It was thought that he had disposed of it by his will, but no will turned up. After some search a will was found in a secret drawer of his desk signed by him in his own handwriting, the name in full. Through every letter of the signature was drawn a perpendicular line, fourteen separate lines, as much alike as the hand could make them. It was contended by the executors named in the will, that the revocation which was effected by that cancellation, if it was a cancellation, was not done by the hand of the deceased, but was done by somebody else with ulterior and dishonest purposes toward those interested in the estate. An expert was found, who from a mere inspection of the signature of the deceased and an inspection of the perpendicular lines, was enabled to say that although the will was ten years old and the ink ten years old and the ink of the perpendicular lines was about the same age, that they were not made by the hands of the testator. That testimony convinced the Surrogate, and it convinced the Appellate Division of the Supreme Court, which confirmed the decision of the Surrogate; but the Court of Appeals decided that civilization had not extended to such a degree, that an expert witness could determine a point of that kind.

I may sum up what I think is the rule to be followed with regard to medical witnesses: They stand upon the same plane as any other witnesses that can be named. There is no witness, be he medical, clerical, legal, lay, expert or otherwise, who stands upon such a pinnacle of excellence that he is infallible, and the testimony of every one is to be determined and weighed and credited upon three considerations: First, the character of the man and his opportunities for observation; second, his relation to the case and the parties, as it indicates bias or want of bias, and the third, the probabilities of his statements.

These are the facts and the tests by which we estimate and weigh all testimony, and by which we conduct our dealings with each other. They are the tests to which the testimony of every man

should come to be accepted, and if it does not come up to the standard, it should not be accepted.

DR. W. BROWNING: It is difficult to say much after listening to these authorities here this evening. Just one point I should like to speak of; it is rather on the merits of the question than germane to the topic in hand, but at the same time the writer of the paper brought it up—that was the custom of bringing in books, the setting up of authorities in court. To me, that is always a very objectionable thing. I doubt if it is as much the practice as formerly.

At the same time I should favor the method of the writer of this paper, that is, to take the books and articles of the gentlemen on the stand, but as to other books there is always a possibility of changing the meaning, if you do not consider the context. Taking simple excerpts from a man's writing is not, I think, quite a fair thing.

DR. A. T. BRISTOW: There is one statement of Judge Hurd's that interests me, as it did all of us, and that is that the courts desire facts rather than opinions, and I should be very glad if he would explain how we should follow out his injunctions to stick to facts. One of the most common questions asked a physician is as to his opinion. In fact a large proportion of expert testimony consists of opinion. Take for instance the case of a man who comes to trial suffering with an injury to a joint. There is impairment of motion in the joint, and the first question the plaintiff's attorney will ask the medical expert, is "Is there any reasonable prospect of complete recovery for this man?" Now, the medical witness must give his opinion there. It is impossible to state a fact in that case. So we are frequently asked by counsel to state what our opinion is, and whether we can state with reasonable certainty, taking certain facts for granted what the outcome of the case will be.

So there are many other things that arise in medical jurisprudence where the only question that can be asked the medical witness is as to his opinion, and his only value to the court is as to the opinion which he can deliver. That opinion is based on experience and its value is to be judged by all those other general facts which Judge Hurd has stated as applicable to all witnesses. Thus it is impossible for the medical witness always to simply stick to a statement of fact. From the very nature of the case his testimony must be largely one of opinion. His function is not the statement of facts, but rather their interpretation.

JUDGE HURD: I do not mean to say that the medical witness may not do that exactly. I meant

to say medical facts, as well as conclusion. We can tell from the fact a bone is broken that pain will follow, physically speaking you can say it is as well known and palpable as our existence. There are facts of that kind which physicians may very properly state. It is when they go into the domain of speculation, the domain of the mind to which I have had reference. Perhaps my statement was incautious in applying it to all cases, so as to excite the suggestion you made. I had no intention of applying it to anything like that. It was the result of incaution.

DR. A. C. BRUSH: I have nothing to add except the one point Judge Hurd brought out. I see I did not make it as clear as I might have, that a witness on the witness stand is to testify to facts—opinions can only be given in answer to a question framed for that purpose. Otherwise I thank you for your indulgence in listening to a rather long discussion.

LONG ISLAND MEDICAL SOCIETY.

STEPHEN L. TAYLOR, Editor.

The 117th regular meeting was held on the evening of March 3, 1903.

The President, DR. R. H. POMEROY, was in the Chair.

SCIENTIFIC PROGRAM.

Paper: By Dr. Kerr. Causes and Relief of Summer Mortality among Brooklyn Children.*

This paper is published on page 221 of this Journal.

Paper by Dr. Howe. ACUTE CERVICAL ADENITIS ACCOMPANYING LA GRIPPE.

The following is a brief abstract of Dr. Howe's paper:

A series of eleven cases is reported, which developed inflammation of cervical or neighboring glands following an attack of influenza.

Case I.—Female, aged 35; chill, headache, myalgia, slight pharyngeal irritation, temperature 101. In about thirty-six hours after the onset, pain under the middle of the right inferior maxilla. Submaxillary gland enlarged and surrounding tissues swollen. Temperature 101 to 101.3-5; swelling persisted for forty-eight hours and suppuration seemed unavoidable. Ice bag applied and swelling gradually subsided.

Case II.—Child 5½ years. Chill followed by temperature of 103.1-5, restlessness and delirium. No pharyngeal symptoms. The following day a swelling appeared in the right submaxillary region, accompanied with severe pain and a tem-

perature 101.4-5 to 104. On the eighth day an incision was made and pus evacuated. Recovery followed.

Case III.—Female aged 11, who had had fever and myalgia for several days. In front of the left ear was a mass which was incised and pus evacuated, evidently from the parotid gland.

Case IV.—Female, 12 years; temperature 103, headache, myalgia, slight redness of fauces. On the fourth day the right submaxillary gland became swollen and continued so for three days and then subsided.

Case V.—Sister of case 4, one week later had a mild attack of influenza followed by swelling of the right submaxillary gland. The swelling subsided in a few days, with application of ice.

Case VI.—The mother in this same family had a mild attack of "La Grippe" followed in 48 hours by a swelling of the right submaxillary gland. This also subsided with the application of ice. About one week later the father developed a similar condition following a mild attack of grippe. All recovered without suppuration.

Case VII.—Male, 26 years of age, who had contracted syphilis six months previous, attacked with an acute naso-pharyngitis, myalgia pain, headache and temperature 103. The myalgia disappeared, but headache persisted. A swelling appeared in the anterior cervical glands. On the tenth day there was a large mass, indurated and tender, occupying the left side of the neck. Temperature 103, pain severe. Incision was made along the posterior border of the sternomastoid muscle and the mass explored. No pus found. Opening continued into submaxillary gland, where a small amount of pus was found. Recovery followed promptly.

Two other cases were mentioned, in which swelling of the submaxillary gland appeared, following mild attacks of the grippe. The submaxillary gland is usually the first affected in acute adenitis, which was true in these cases. The infection was probably mixed, though its nature was uncertain. The application of ice was the most satisfactory treatment.

Discussion.

DR. SCHOENIJAHN mentioned a case which had been thought to be a case of adenitis, which afterward proved to be diphtheria.

DR. HODGES recalled a case which was diagnosed as grippe. The tonsils were large and red. No membrane. Temperature 101. There was an old valvular lesion. This child died. No membrane was visible at any time, nor could be discovered on post-mortem examination. An-

other member of the family who had been exposed did show a membrane later. Two days later a third member of the family was taken sick. The membrane was present in this case.

DR. SHAW said that he had seen very few cases of adenitis or suppuration accompanying grippe. He called attention to the cases which developed suddenly with severe symptoms and membrane in the throat, which often recovers as suddenly. Antitoxin hastens the recovery in these cases.

DR. HOWE said that in all cases reported he felt sure of his diagnosis of la grippe.

PAPER—THE FIELD OF NITROUS OXIDE GAS IN GENERAL ANESTHESIA—DR. WM. A. JEWETT.

The following is an abstract of the paper:

Nitrous oxide gas is the safest anesthetic and the pleasantest for the patient, as it is not irritating to the mucous membrane of the air passages. It also has an advantage over other anesthetics in diminishing the length of the anesthesia. It is supposed to produce anesthesia by shutting off the oxygen and causing asphyxiation. It is necessary on this account, to allow the patient air frequently. Recovery is almost immediate, after prolonged anesthesia two to four minutes. There is usually slight dizziness and nausea following. In two cases there was temporary mania, following its administration, one lasting 30 minutes and the other two or three hours. The method of administration is not difficult, the same precautions being necessary as are observed in other anesthetics. It is well to have ether and chloroform ready for use in case the gas is not well taken. In filling the bag before administering the anesthetic, the gas should be allowed to flow in slowly, as a too rapid flow causes the moisture to freeze on the valve and the bag or tube will explode. The expense of the apparatus is doubtless a hindrance to its popularity.

As a preliminary to ether anesthesia it is of great value. The Bennett apparatus may be used for this, with which the change is made gradually, or the Allis inhaler may be used and the change made at once after anesthesia has been established with nitrous oxide gas.

Nitrous oxide may be used alone for dilating and curetting of the uterus, repair of the cervix and perineum; hemorrhoids, stretching of the sphincter, operations on the urethra, posterior section for pelvic abscess and most of the operations on the pelvic organs performed by the vaginal route. Ether is better for laparotomy, as the muscular relaxation is not complete with nitrous oxide. It may be employed in all minor opera-

tions. Nitrous oxide will never supplant ether and chloroform, but it has a larger field of usefulness than is generally accorded it.

Discussion.

DR. HOOPLE said that the insanity which occurred when nitrous oxide was first used was thought to be due to impurities.

DR. BUTLER mentioned one case in which the anesthesia was continued for 2½ hours. Nausea usually follows about ½ hour after administration.

DR. POLAK said that he did not get complete relaxation in nitrous oxide anesthetics.

DR. WATT spoke of a number of cases in which it had been used for laparotomies, one case lasting one hour, another lasting 1½ hours. Glycosuria has followed nitrous oxide anesthesia.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.— SECTION IN LARYNGOLOGY, RHINOLOGY AND OTOTOLOGY.

Stated Meeting, January 22, 1903.

B. C. COLLINS, M.D., Editor.

The President H. ARROWSMITH, M.D., in the Chair.

Programme: REPORT OF A CASE OF SUDDEN DEATH FOLLOWING EARACHE AND DISCHARGE, Dr. S. H. Lutz. Two Cases of Chronic Exudative Middle-ear Inflammation, Dr. B. C. Collins; An Unusual Case of Peritonsillar Abscess, Dr. W. S. Shattuck; Serous Exudations into the Middle-ear during the Course of Pneumonia, Dr. W. C. Braislín.

REPORT OF A CASE OF SUDDEN DEATH FOLLOWING EARACHE AND DISCHARGE.

BY S. H. LUTZ, M.D.

H. C., aged 24, went bathing on Sunday afternoon, July 21, 1901. Sunday evening he complained of pain in right ear. The pain increased toward morning. On Monday he called on Dr. T. about ten o'clock. He advised hot douches. Monday night there was a slight serous discharge from the ear and the pain decreased, but began again toward morning. On Tuesday, Dr. T. called to see the patient about noon. He found him worse and telephoned to me but missed me. I got his message about five o'clock and went

with him to see the patient at seven o'clock in the evening and found the man dead. His wife told me that the pain grew very much worse shortly after noon and he complained of pain all over his head, but about two o'clock P. M. he became incoherent in his speech, cried and screamed and then about 5.30 P. M. he became quiet, went into a stupor from which they could not rouse him and shortly after six o'clock stopped breathing. The man was dead. I examined the ear and found a small perforation in Shrapnell's membrane blocked by a plug of thick muco-pus. I removed this and a quantity of very foul pus burst out. I was able to pass a Hartmann probe nearly three inches into the brain through the attic and a hole in the tegmen tympani.

There must have been either a natural absence of bone or a particularly thin plate of bone here which rapidly broke down and allowed the entrance of infection into the middle cranial fossa and the resulting fulminating meningitis caused his death.

This case demonstrates how serious a seemingly simple earache or ear discharge can become in a very short time. The total time which elapsed from the time of bathing to death was not more than fifty hours.

TWO CASES OF CHRONIC EXUDATIVE MIDDLE-EAR INFLAMMATION.

BY B. C. COLLINS, M.D.

I wish to call attention to that class of suppurative inflammation in which a mucus discharge occurs from the middle-ear described by Dr. Alderton about a year ago. I treated last winter three cases. Two have returned this past November with the same condition of affairs. The discharge appeared about three days after an acute cold in the head had subsided. No pain, but a stuffy feeling in the ear preceded the discharge.

I have found these cases exceedingly difficult to cure, the discharge reappearing after the drum had closed and regained its normal color. My method of treatment has been to drain the ear with gauze, having found it to answer much better than syringing in these cases. In the ear I used nitrate of silver solution from $\frac{1}{2}$ grain to 1 grain to the ounce. Stronger solutions produced considerable reaction and increased the discharge. The drum was repeatedly incised and the silver introduced with a glass pipe or a Blake syringe.

In one case an enlarged tonsil was removed and in the other a nasal spur.

Care of the nose and naso-pharynx was a part of the treatment, but the results to me were very unsatisfactory.

AN UNUSUAL CASE OF PERITONSILLAR ABSCESS.

BY WARREN S. SHATTUCK, M.D.

The patient was a boy, aged 6 years, giving a family history of tuberculosis. He came to the Brooklyn Eye and Ear Hospital about eighteen months ago suffering from an acute mastoid abscess which was the immediate result of a neglected chronic suppurative middle ear inflammation, which dated since infancy. The mastoid condition was relieved by the usual operative measures, but the wound was slow in healing, owing to the child's poor physical condition. The discharge from the middle ear has never ceased. About eight months from the time of operation I was called to the house late in the afternoon to treat this boy for a supposed diphtheria. The child was suffering much pain and examination showed a large peritonsillar abscess on the same side as the discharging ear. As I had not anticipated such a condition, I had no knife suitable to open an abscess, so promised to come early the next morning. During the night a sudden and very profuse discharge of pus came from the ear and the pain in the tonsillar region at once began to subside. When I saw it the following morning the displaced tonsil was back in its normal position, whereas the previous afternoon it almost touched the opposite tonsil. The peritonsillar tissues were still moderately inflamed, but the tension had subsided and the boy was able to swallow without pain, which he had not done for five days past. The abscess had evidently ruptured into the Eustachian tube and had discharged through the middle ear cavity and the long existing perforation in the drum membrane. The reason for reporting this case is the unusual manner of its termination.

SEROUS EXUDATION INTO THE MIDDLE EAR DURING THE COURSE OF PNEUMONIA.

BY WILLIAM C. BRAISLIN, M.D.

Involvement of the middle ear is a not uncommon complication of pneumonia. A paper lately appearing described some unexpected findings, *post-mortem*, in pneumonia, and among these are included inflammatory exudation into the ear and the accessory sinuses of the head, as, for example,

the frontal and maxillary antri. The symptoms to which they gave rise were not stated.

One case recently seen of serous exudation into the middle ear was that of a physician recovering from a severe attack of pneumonia. On first sitting up at the beginning of his convalescence he noticed that there was something wrong with his head. He was desirous of ascertaining whether or not the trouble was in his ears. While lying on his back no symptoms referable to the ears were present; but on sitting up a rapidly progressive loss of hearing took place, together with a feeling of fullness and bulging of the ears, more marked on the left side. On reclining, a rather rapid retrogression of the symptoms occurred with restoration of his power of hearing; but each time the experiment of sitting up was tried the same symptoms recurred.

On examination I found that while in bed in the recumbent posture the ears appeared perfectly normal. There was not the slightest congestion of the hammer vessels of the *membrana tympani*. On sitting up a thin line of fluid could be detected, visible through the translucent membrane which then acted as a damper to its normal vibrations. A diagnosis of serous exudation into the middle ear was made. The explanation of his symptoms lay in the fact that when in the recumbent position the fluid gravitated backward into the antrum and perhaps the mastoid cells, leaving the drum perfectly capable of vibrating normally to sound waves, while raising the head caused the fluid to gravitate into the middle ear and against the inner surface of the drum, causing partial interference with its normal activity.

No special treatment was advised, it being thought that the medicines employed for the promotion of the absorption of a small amount of pleuritic effusion still present, were sufficient likewise for this.

I regarded the fluid to have been sterile, as seemed likely by the prompt clearing up of the effusion.

I think it would be an error to open a drum under these conditions, since such a procedure would certainly expose the middle ear to infection from pus-producing germs.

Another case was that of a young man who suffered with a severe type of double pneumonia. Almost as soon as the stage of delirium passed the patient complained of deafness and loud roaring tinnitus, worse in the left ear. No pain existed. He complained of this tinnitus more than of any other symptom. I saw him at this time. As there were present no evidences of acute in-

flammatory action, this case was managed as was the preceding, and, as in that, the result was, ultimately, perfect recovery.

THE BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, JANUARY 3, 1903.

The President, W. M. FRIEND, M. D., in the Chair.

HYDRONEPHROSIS OCCURRING IN A HORSE-SHOE KIDNEY: NEPHRECTOMY; RECOVERY.

DR. A. T. BRISTOW reported a case with the following history: One month before admission patient noticed a feeling of fullness and weight in left side of abdomen well up under the ribs, not constant, but gradually increasing in severity. Four days before admission the pain and sense of weight inside became so severe, that for the first time patient ceased working and took to bed. Bowels have been constipated since onset of trouble. Noticed no urinary change. On admission to hospital complains of agonizing pain in left side of abdomen, varying in intensity. There are malaise, slight headache, anorexia, no vomiting; bowels obstinately constipated; have not moved since date of onset of acute symptoms. Has had no fever, chill or sweat, as far as he knows. No change in amount or character of urine.

Examination: General appearance poor; emaciated, and anemia is marked. Skin had a faint yellowish tinge. Tongue thick and heavily coated, whitish; breath foul. Heart negative, save for accentuation of second aortic sound. Lungs: apparently normal. There are scattered over body numerous small, whitish scars. Lymphatic ganglia are hard and enlarged. In left side of abdomen, principally in lumbar region apparently growing downward from left hypochondriac region, is a large tumor, tense and resilient; flat on percussion.

As active purgation by drugs and enemas failed to diminish size of tumefaction, patient was transferred to the surgical ward two days after admission. Examination on admission to surgical ward showed tumefaction extending down from left hypochondriac region, as far as crest of ilium, and encroaching upon epigastric and umbilical regions. Palpation elicits fluctuation. Percussion—flatness, continuous with splenic and renal flatness over entire tumor.

Urine analysis: sp. gr. 1021; acid; trace of al-

bumin; uric acid in considerable amount; granular and epithelial casts; no pus. Several examinations made subsequent to the foregoing showed no change in urine. After operation the patient voided between 21 and 24 ounces of urine every twelve hours. Before this time urine was not measured. Two blood examinations gave somewhat different results, the first showing 9000 leucocytes, the second 15,000.

Temperature: Intermittent between normal and 101° F. till operation, after which, with exception of one day when it reached 101 2/5, it was between 98° and 99°. Diagnosis, perinephritic abscess.

Operation: An incision was made occupying the middle of the line of the Thornton incision, the muscles exposed and separated until the sac of the supposed abscess was exposed. Opening this, clear urine flowed out, but no pus. By this time the operator realized that his original diagnosis was an error, and that he had to deal with a condition of affairs which was probably a hydronephrosis. He enlarged the incision, carrying it backward to the outer border of the erector spinal muscle, and much farther forward than usual. This gave ample room. Then making a free incision into the sac which contained the urine, he found in the bottom of this sac a large kidney, which was lobulated like the kidney of a sheep. In the centre of the kidney there was an opening in the cortex. Whether this opening was due to handling in the course of the operation or not, he was unable to say. The lower pole of the kidney reached downward below the ileo-pectineal line. With a good deal of difficulty he enucleated the lower pole, and at first his impression was that he had to deal with a case of pelvic kidney, —those cases we sometimes come across in the dissecting room—where the kidney had developed and remained in the pelvis.

He said that he had showed in this Society some years ago a pelvis containing such a pair of kidneys, where the entire kidney of each side lay in the false pelvis, not movable, with an abnormal circulation. In all the cases where the kidney remains in the pelvis, it has an abnormal circulation, viz.: two renal arteries, one arising from the common iliac, and the other the ordinary renal artery; and two veins, one going to the internal iliac and the other to the vena cava. He concluded, therefore, that he would find a circulation as in these cases. He was not mistaken, but as he enucleated the lower pole of the kidney, securing the vessels in the pedicle as he came to

them, including an abnormal branch from a lumbar artery, he found that he was prevented from delivering the kidney by a broad band of kidney tissue which crossed to the other kidney. It was evident that he had a horseshoe kidney to deal with.

A heavy pair of clamps was placed on this bar of renal tissue, which was then divided and the kidney removed. It was hypertrophied, much dilated, with rather thin cortex, and seemed to have no capsule at all.

The interesting feature of the case to him was the cause of the trouble, which brought about this condition. Congenital cysts of the kidney occur beneath the capsule, and his impression was there had been first a hydronephrosis as a result of obstruction in the ureter, and as a result of this a thinning out of the kidney tissue until an opening was made through the thin cortex into the cyst, and finally through hydrostatic pressure this large cyst was developed by the stretching or separation of the capsule of the kidney, so that at operation a large capsule filled with urine was found and in the bottom of that capsule the abnormal kidney.

The patient reacted very well from the operation. The wound was packed with gauze, but not sutured. Forty-eight hours afterwards, under gas, the clamp was removed without hemorrhage and all the gauze, the severed muscles being united with chromicized catgut. The skin incision was closed with the exception of a small opening for drainage.

The patient, with the exception of one day after the operation, has never had a temperature over 99. At first there was a great deal of urine discharged from the wound. It was estimated sometimes as high as 11 to 14 ounces. This was diminished very rapidly and is now very small.

The surgical problem that presented itself to the speaker was whether to do a nephrectomy or not. His reasons for doing a nephrectomy were that he had a large kidney which had filled rapidly, that he had a large sac containing urine, and that it did not seem probable that this large cavity filled with urine would contract unless he removed the source of the urine.

In a long experience in the dissecting room Dr. Bristow had seen only three cases of horseshoe kidney.

Discussion.

DR. G. R. FOWLER thought a word might be said about the rarity of hydronephrosis in horseshoe-shaped kidney, since horseshoe-shaped kid-

ney itself is rare, and the occurrence of hydro-nephrosis in connection with it is of still greater rarity. He knew of but one case in the literature, and that was reported two months ago, of a surgeon who was compelled to enucleate half of a horseshoe-shaped kidney. He did precisely what Dr. Bristow did when he found he had a horseshoe-shaped kidney to deal with, that is to say, he separated the diseased portion from the healthy portion through the connecting bar. In the case mentioned a ligature was first applied, the section being then made in front of the ligature. The patient made a good recovery. A urinary fistula persisted for some time. One must expect the latter, since a crushing ligature is applied through renal tissue, and the urine must necessarily find its way along the wound tract and out to the external world by the shortest route.

CHOLELITHIASIS; CHOLECYSTOTOMY.

DR. A. T. BRISTOW reported a case, which was interesting particularly because of a case which was reported at the last meeting of this society, a case of cholecystitis with rapidly resulting gangrene.

The patient came into the hospital with pneumonia on December 13th and was apparently getting well; in fact, the lung had cleared up, when on December 28th he began to complain of general abdominal pain, with a localized area of tenderness in the region of the gall bladder. On examination there was discovered a large pea-shaped tumor extending from the lower border of the liver, downwards. There was no history of previous illness similar to this or any history of gall stone colic. Operation was decided upon on account of the tenseness of the tumor and the amount of local tenderness. Chloroform was given on account of the previous pneumonia. He took the anesthetic well, and an incision splitting the right rectus was made and the abdomen opened and a very tense gall bladder revealed—so tense that it was impossible to put a clamp on it. In order to diminish the tension he put an aspirating needle in and drew off six or seven ounces of bile-stained fluid, which was not purulent. Then the gall bladder collapsed, so that he could pull it up in the wound, walling off the general cavity with gauze. Exploration by the finger discovered a single large stone, which was removed. The mucous membrane of the gall bladder was velvety and bled easily.

Cultures were made of the fluid removed from the gall bladder, and the report showed the presence of the colon bacillus in pure culture.

There are two things of interest: First of all that this large gall stone had remained an indefinite time in this gall bladder without giving rise to definite symptoms, but when a lowering of the vitality due to pneumonia took place an infection by the colon bacillus occurred, and immediately an acute cholecystitis developed. Urgent operation in this case was necessary to anticipate rupture or gangrene of the gall bladder.

The subsequent treatment of the case was as follows: A drainage tube was introduced into the gall bladder and secured by a purse string suture and brought out of the wound. Around the gall bladder a few strips of drainage gauze were placed and the wound closed except for a sufficient space for the exit of the drainage tube. The patient made an excellent recovery.

This would have been a case, as far as the condition of the gall bladder is concerned, for an ideal cholecystotomy—the removal of the offending body and immediate closure of the gall bladder with closure of the abdomen. "Ideal" is a word which may differ according to the man who uses it, according to what we mean by "ideal." It is ideal in one respect to close the gall bladder and have no drain, but Dr. Bristow's opinion of an ideal operation was one which accomplishes the end in view with least risk to the patient, and no cholecystotomy which closes the gall bladder is ever safe, because the prime object of operation, drainage is not provided for, since we cannot depend on the common and cystic ducts to give free exit to the contents of an infected gall bladder. If drainage through these natural channels had been effective operation would not have been required at all, and it is not wise to conclude that channels which were impervious before operation will remain pervious afterward.

Discussion.

DR. J. R. KEVIN observed, apropos of the remarks of Dr. Bristow on "ideal cholecystotomy," that it was his privilege to have a case about a year ago, very acute in its history, which, when opened, suggested that there was no indication of pus. He removed eighty-four stones, washed the gall bladder thoroughly with a full strength of peroxide of hydrogen and sterilized salt solution, after which he closed the incision without drainage according to the ideal method. The patient left the hospital in nine days practically cured, the external wound having healed under primary union.

It seemed to him with the progress of surgery to-day that we should hesitate in instances where

there are no indications that stones are left, or where there are no symptoms of pus, that we should drain there, any more than any other part of the body. It is well enough to do so when we have reason to suspect infection. He did not see why there should be a great deal of danger even if infection should take place after closing the gall bladder, since it is easy to make another incision and drain, if necessary. Certainly the case he had referred to found a great deal of comfort and great economy in time of convalescing by not resorting to the tediousness of dressings, necessary daily, where drainage is established.

DR. BRISTOW said with reference to this question of drainage of the gall bladder that in the first place there is always more or less hemorrhage in these cases. The mucous membrane is succulent and bleeds readily, and the drainage of the gall bladder is much more important than the gain of a few days in point of time one secures by closing the gall bladder at once. Moreover, if the necessity for drainage occurs afterwards, as Dr. Kevin remarks, he will not have an opportunity to operate a second time, because the patient is apt to get a septic peritonitis. In gall bladder work the wisest surgery is that which drains the gall bladder, preferably through a rubber tube. In some cases one may do a Kader operation on the gall bladder, invert and attach to the tube. In his experience there is always a colon bacillus infection in these cases, and he does not care to close up a gall bladder which he knows is infected and then return it to the abdominal cavity and then close up the whole wound.

One other thing: There is no operation in the abdominal cavity which is attended with so little risk as cholecystotomy. He had lost but one case, and that was the first case he did. The patient died two weeks afterwards of a double pneumonia.

DR. G. R. FOWLER said the gall bladder case Dr. Bristow referred to emphasizes the necessity of operating early in these cases of threatened, if not really present, infection of the gall bladder, coincident with the presence of gall stones. It is probably true, since gall stones are found so frequently, *post mortem*, in patients who never complained, that the gall stones do comparatively little harm in the gall bladder, but when infection takes place nutritive disturbances in the latter commenced. This may be a simple catarrhal inflammation or there may be so severe an infection of the gall bladder wall as to give rise to gangrene and perforation of this

viscus and death from septic peritonitis. This matter is becoming of considerable importance in abdominal surgery, and is awakening as much interest to-day as inflammatory lesions of the appendix vermiformis did some years ago. Surgeons are coming to recognize if they are to get the best results and a lower mortality from septic peritonitis, they must interfere early, not only in appendicitis, but must also watch carefully for indications for prompt operation in gall bladder lesions.

SIMULTANEOUS EXCISION OF BOTH EXTERNAL CAROTIDS FOR MALIGNANT DISEASE OF THE CHEEK AND UPPER JAW.

DR. G. R. FOWLER presented a specimen removed from a patient the subject of malignant disease of the cheek and upper jaw, in which the double Dawbarn operation was performed just one month ago. It is the first case on record that has survived the simultaneous excision of both external carotids. Dr. Fowler had done the operation upon both sides simultaneously three times; two of them have recovered, the third dying on the fourth day quite unexpectedly. No post-mortem was allowed in this case. He believed the present case is also the first in which it has been decided, after having excised both external carotids, to do the radical operation for the removal of the growth. The latter involved a large area of the cheek, and had extended to the upper jaw. The pathological diagnosis (epitheliar carcinoma) was made by Dr. William Moser, of the German Hospital.

Operation.—The operation consisted of excision of the entire carotid artery first of the left side. He was fortunate enough on this side to reach the internal maxillary and the temporal branches without tearing the vessel. This was done with very little encroachment upon the parotid gland. The external carotid artery was tied at the bifurcation, after which each branch was doubly ligated and divided between the ligatures. Finally, by slightly dividing the parotid gland itself he succeeded in getting to the internal maxillary and the termination of the external carotid in the temporal. A similar procedure was carried upon the other side. The patient's condition continued excellent throughout the entire operation.

Although Dawbarn has never done the double operation at the same sitting, the speaker was encouraged to do it in this case because the man's condition would permit it. Sufficient room was obtained to inject the stump on the affected side,

and he did not hesitate to inject half a drachm of melted paraffine at 120° F. into the stump of the external carotid, which passed up into the remainder of the branches of the vessel. In the right side he did not succeed in getting beyond the occipital, the external carotid tearing at this point, while he was trying to drag it down; the stump retracted and he did not succeed in reaching it, and was therefore compelled to abandon it without. However, there was no bleeding from it. A most remarkable change took place in the growth after the incision of the carotids. The ulcerative process, which was well under way, ceased, the surface dried, and the edematous condition, which seemed to extend to the lower lid and well up on the nose on the same side, as well as back towards the zygoma, this edema being accompanied by decided redness and with peculiar thickening of the skin, quite characteristic of malignant disease, subsided. In the course of a week the disease was found to be very decidedly limited, and it was this which finally encouraged him at the end of a month to excise the entire growth. This was done yesterday.

The incision commenced at the Ferguson incision for excision of the upper jaw and was carried around the wing of the nose and almost to the nasal process of the superior maxilla. It was then carried along the margin of the orbit, and thence downward and outward in the direction of the zygoma. The incision for the extirpation of the growth was now continued, commencing upon the lower lip and carrying it around three-quarters of an inch from the diseased area, and then to meet the incision first described near the external angular process. In this way he completely encircled the growth, and at the same time opened up the way for the removal of the superior maxilla. The Gigli saw was first employed near the articulation of the malar; at the nasal process the chisel was employed, as well as along the orbital plate; the hard palate was partially divided with the saw and then separated with the chisel.

The interesting feature of the whole operation was that there was not the slightest necessity for the employment of clamps or application of ligatures. It was like chiselling out the bony parts on the cadaver, and with these removing the soft parts covering the bone. There was no bleeding, although there was sufficient oozing from the skin edges to promise a sufficient amount of blood supply to provide for the needs of repair. To-day in examining the parts it is found there are evidences of free circulation through the skin edges.

The parts were brought together by carrying the incision around extending from the external angular process well above the ear and back upon the scalp; what remained of the cheek was then loosened well back and drawn forward, so that the opening which resulted from the removal of the large mass when the suturing was completed, was a little less than that of a silver dollar. This he shall expect later on to close by either carrying a flap from the neck or from the shoulder, or from the arm placed in proper position for this purpose.

The patient rallied well from the shock, of which there was very little, this doubtless being due to the fact that there was no loss of blood. It was striking to see what an extraordinary good condition the man was in upon leaving the table.

Discussion.

DR. BRISTOW asked if Dr. Fowler tied off all the veins or spared them? Dawbarn originally recommended sparing all the veins.

DR. FOWLER said that he spared the veins in the first and second cases and in a case operated upon to-day. He accidentally tore the facial vein on one side and was compelled to ligate it. The operation as originally devised leaves the veins intact.

DR. A. T. BRISTOW wished to say a word on extirpation of the veins. He had a discussion on that subject with Dr. Dawbarn and had succeeded in convincing him that the proper thing to do was to extirpate the veins as thoroughly as the arteries, the reason being that the compensatory circulation is much more easily restored when the veins are left than when not left there, and his arguments were sufficiently good to convince Dr. Dawbarn that he was right. He has changed that part of his operation, and now extirpates the veins as well as the carotid artery itself. Tying off the veins makes the operation shorter and easier, particularly where you have not very good tissues and have to deal with carcinomatous and sarcomatous gland substance. The facial vein lies right across the field; it is quite large; and the whole operation is much simplified by getting rid of the veins, and that is now Dawbarn's practice. Dr. Bristow had extirpated the veins in all the cases he had had.

The more of these cases of excision of the external carotid he had the more was he convinced that because some of them are easy one cannot say it is an easy operation. If one has a patient with a thin and long neck with a relatively low division

of the carotid, he has a comparatively simple job. Where the patient has a short neck with a high division of the carotid we have one of the most difficult propositions in surgery, and particularly if in addition to that there are glandular masses also to remove. It is possible, of course, to go into the parotid gland and divide that, getting a little more room and perhaps a facial paralysis, but, as Dr. Fowler observed, facial paralysis is not worthy of mention in connection with carcinoma or sarcoma.

Another thing he had found in extirpation is that the bifurcation on the right side is always considerably higher than on the left. In the last case which he did the vessel did not divide until it reached the angle of the jaw on the right side. The left side was reasonably difficult; but he was able to excise the whole of the vessel.

These cases are attended with a good deal of shock, occasionally out of proportion to the hemorrhage. In the case referred to there was some little hemorrhage. He removed the facial vein high up. This man lost about three ounces of blood; nevertheless he died after being taken to the ward. Dr. Bogart had had a similar experience; and the speaker knew a number of cases had died in a short time after the operation. Now the dissection does not begin to compare with many dissections we do for tubercular glands; the dissection does not begin to compare in extent with the dissection Dr. Fowler showed this evening, but it does interfere with vital functions. It may be pressure on the external laryngeal with weak vitality. In one case the speaker was under the impression it might be due to total paralysis of the hypoglossus. In this case he did not at first recognize the nerve, as it was buried in the infiltrate, and put a clamp on it. He took the clamp off the nerve, but afterwards he had some hemiatrophy of the tongue, due to neuritis. He did the same thing on the other side. He had the same infiltration to deal with, and did not recognize the nerve at first. The patient died subsequently in the ward from a failure of respiration. He had wondered whether it was possible his tongue fell back in the ward as he was recovering from the anesthetic; also whether it was possibly due to a paralysis of the muscles of the tongue, and whether that would account for his death. At all events it is a fact that a number of these cases have died in quite a short time after the operation. Hemorrhage does not account for it. In all the other four cases he had operated on he did not suppose all the cases lost four ounces

of blood. The superior laryngeal and the hypoglossal nerves may be interfered with.

DR. G. R. FOWLER, referring to the necessity for ligating veins or the desirability of ligating veins as well as arteries, said that if there is less opportunity for escape of blood from the parts supplied by the vessels there is less inducement for the blood to enter the parts, so that in this way there may be a stasis of venous blood, which operates exactly the reverse to encouraging a return arterial circulation. He presumed that is the point which Dr. Bristow makes.

In the matter of the occurrence of shock, it occurred to him in thinking over this procedure before doing it, that the deprivation of the blood supply to some of the important nerve structures, particularly to the sympathetic ganglia, may be such as to make it undesirable to disturb. In the case operated on, the case of the old man whose external carotid he brought here in a bottle to-day, the anesthetic called attention to the fact that upon the right side there was a temporary dilatation of the pupil, which occurred after the complete extirpation of the vessel upon the corresponding side, and that the pupil contracted and dilated irregularly. As the operation proceeded it settled down to a point midway between contraction and dilatation. This was not observed to occur when the other carotid was excised. In view of this there may be some disturbance of the sympathetic ganglia of the corresponding side in this operation, theoretically. Practically, however, in his experience, this does not occur.

In those cases in which there is a short neck there may be a different level of bifurcation or an apparent difference, but in all three cases he confessed he had not been able to determine this point. It seemed to him that they were both practically upon the same level. In one case there was more difficulty in getting out the left than the right. It is certainly true, however, that the operation may become very difficult, and that the surgeon may be willing enough to do it in two stages in certain cases, he had no doubt. He had been fortunate, however, in all three of his cases in having necks to deal with that gave easy access to the vessels. It is wrong to positively insist that it should never be done on both sides at the same sitting, because in certain cases it is difficult to do this. He thought here one must judge, as in all operative cases, by the ability of the patient to bear the shock incident to the work in hand.

PERINEAL PROSTATECTOMY.

DR. W. A. SHERWOOD presented two specimens of prostate glands removed by Dr. Pilcher by the perineal operation.

The first case, a man 65 years of age, a clergyman, who had been suffering for a number of years with the usual symptoms of hypertrophy of the prostate. He applied for relief and removal of the prostate gland was decided on. He was operated on the early part of September. The incision was made in the perineum extending from the scrotum down to the margin of the sphincter muscle longitudinally, and two lateral incisions were made on either side running from the main incision towards the tuberosities of the ischia, so as to enlarge the opening as much as possible and facilitate access to the prostate. The prostate was exposed by means of blunt dissection along the under surface of the urethra and brought down as low as possible and removed piece-meal. The bladder was drained by means of a perineal tube, and the patient made a good recovery from the operation. His convalescence was satisfactory in every way except for a complicating cystitis. The cystitis cleared up in time. The case was treated in the same way as a stricture of the urethra would be, viz., by passage of large-sized sounds into the bladder at regular intervals, thus keeping the urethral canal patent. The perineal wound closed promptly and the patient voided his urine in the usual way. The amount of residual urine steadily decreased, and the patient now goes about in a great deal more of comfort and health.

The second case, a man 72 years of age, was operated on in the early part of this month. He had suffered for some fifteen or twenty years from increasing disability from prostatic obstruction, frequent urination at night, and at times a stoppage of the flow of urine altogether, which required the use of a catheter. Several days before being operated on he had an exacerbation of his cystitis, which was characterized by the passage of large quantities of blood and pus. This was followed by an attack of retention of urine, and for three days before operation he required constant and frequent use of the catheter. He was operated on the 12th day of December. The same method as in the above case was employed. The incision was made in the same way with incisions running off on either side towards the tuberosities of the ischium. This prostate gland seemed very much more accessible, more easy to get at than the other did. It was brought down

by means of tenaculum forceps and very easily excised piece-meal. The specimen after removal weighed 935 grains. Up to the present time the patient has done very well, with the exception of some wound complications. He developed a diphtheritic condition on the perineal wound and also a small fistula, which formed a means of communication between the perineal wound and the rectum, and through which there was some escape of feces. This is now doing well and the patient bids fair to make a good recovery.

The microscopic examination of the prostatic tissue showed a marked increase in the interstitial connective tissue, sclerosis of all the arterial radicles and marked dilatation of the venous channels.

Discussion.

DR. G. R. FOWLER wished to know whether tube drainage was introduced when lateral perineotomy was employed and when the neck of the bladder and prostate were divided in the course of the operation, or whether it was introduced in connection with the median operation, although at the present time drainage of the bladder through the perineum is done by the median route.

His reason for asking information upon this point is that up to fifteen years ago the results of drainage for prostatic enlargement were somewhat disappointing. While the important symptoms were relieved, it was found that the patients were not relieved of the essential cause of the difficulty, viz., the enlargement of the prostate. About fifteen years ago he began to use large drainage tubes, more than sufficiently large to pass easily into the bladder, tubes that were so large that it was necessary to dilate the neck of the bladder in order to pass them. From that time on he obtained very much better results from this simple procedure. The constant and elastic pressure of the rubber drainage tube upon the middle lobe of the prostate, when this lobe was at fault, has seemed to result after withdrawal of the tube in a decided betterment of the conditions such as were referable to the enlarged prostate.

In one case he remembered operating on a man of 84 by this method. The tube was worn for six weeks. From the time of the withdrawal of the tube, six weeks from the time of operation, until his death, five years later, he emptied his bladder practically in a normal manner, that is to say, at intervals of four, five and sometimes six hours, only occasionally arising once at night. He declared only a month or two before his death

that his urinary apparatus was like that of a young boy.

These are not simply accidental results without doubt; they had something to do with the use of the large drainage tube. This experience had occurred to the speaker a number of times, and he thought that the method of perineal section and drainage has its advantages if pains are taken to have the patient wear as large a tube as possible, its purpose being to exert pressure, thus setting up nutritive changes, or in some other way reducing the size of the prostate.

He had had no experience with the Bottini operation itself, but some five years ago at the Brooklyn Hospital he did the operation of cauterization of the prostate with the Bottini instrument through the perineal wound. At that time he desired to have a short Bottini instrument made for the purpose of doing the operation through the perineal wound, thereby having it more perfectly under control than when the manifestation is through the whole length of the urethra.

The result in that particular case was excellent. It was a negro on whom he operated, and the relief was complete and prompt. Drainage was kept up only a week—not long enough to get the effect of the drainage tube. He left the hospital in good condition.

Dr. Fowler had not had the opportunity of doing the operation in this manner in a subsequent case, but it impressed him very much as being a great advance on the ordinary method of Bottini, as it gives us the advantage of complete drainage from the bladder instead of the possibilities of urinary infiltration and all the other untoward conditions, which are said to follow the Bottini operation.

DR. W. C. WOOD said that there is one slight point in connection with the very early treatment of these cases that deserves special mention. There is a time in all these cases of prostatic hypertrophy when the first attack of retention comes and before cystitis has developed. It is possible in some of these cases to avoid attacks of retention and the cystitis that follows by simple medicinal means. He had one patient in mind, who, by taking occasionally *nux vomica*, like our neighbors down on the Island take their quinine, when occasion requires, has suffered but little further inconvenience from his prostate, which has been enlarged during the past four years. The speaker had seen other cases who have been able to empty their bladders when the muscular tone of the bladder has been preserved by such

moderate and intermittent medication. That, he thought, was a point in prophylactic treatment of enlarged prostate that has not had the attention it deserves.

In all these various types of operation the most brilliant result in any case that has ever come under his notice (a case of enlarged prostate with a large stone in the bladder, in an elderly man, with nine years of catheter life, with frequent attacks of cystitis) has come from the Bottini operation with a crushing of the stone as a secondary procedure.

A similar equally satisfactory result in a case he had followed many years has come from the simple operation of castration, and in the face of these occasionally perfect results, after these two procedures, one is loath to take up the subject of prostatectomy with the enthusiasm it probably deserves. To his mind the modification as introduced by Parker Syme, of bringing down the prostate to the perineal wound, is, from the present indications, the operation of the future for the average case of enlarged prostate.

REGULAR MEETING OF THE SECTION ON PEDIATRICS, HELD ON FEBRUARY 13, 1903.

President, DR. WM. A. NORTHRIDGE, in the Chair.

DR. PARRISH reported four cases of marasmus treated by use of certified milk. Each case recovered.

DISCUSSION.

DR. KERR: The doctor is to be congratulated upon his excellent results in the four reported cases. This is especially true because the treatment was entirely dietetic; it is only another argument for the more extended use of the certified milk.

I am never satisfied to treat these cases by the regulation of the diet alone. There is a direct indication for the use of other foods than milk, as *somatose*, *panopeptone*, etc., and particularly for the use of an oil; either cod-liver or olive. The value of the oil depends upon the ability of the child to assimilate it. Where the child's digestion is poor and the oil rejected, it may be used by rubbing the whole body surface with it, twice daily. How it acts, I am not prepared to say, whether by absorption of the oil, or by an increased activity of the nutritive changes from

the massage; but this we do know, that clinically, we get the results.

Equally important is the regulation of the general life of the patient.

Instead of the usual hopelessness of these cases, which we would assume was the rule, from the text-books, I agree with Dr. Parrish, that the tendency is toward recovery, the greatest danger being not from the disorder itself, but from the possible development of another disease, which adds too much strain to an already weakened body.

NON-CONGENITAL HEART DISEASE IN CHILDREN.

DR. LE GRAND KERR.

In infants and young children, the functional disorders of the heart are few and of little importance. An imperfectly conscious mental condition eliminates so many of these, that the few that are left are mainly disturbances of rhythm; as tachycardia, bradycardia and arrhythmia.

After the seventh and up to the fourteenth year, they are not uncommon.

The demands made upon the heart by the rapidly growing body, the introduction of elements leading to nerve exhaustion, masturbation, over-study and common errors in the excessive use of tea, coffee and tobacco, all play their parts as causative agents.

In infants the etiological factors centralize about the naturally impaired nervous control of the patient; a condition of deficient coördination which is natural.

These neuroses exhibit no constant physical sign, and it often requires repeated examination to distinguish them.

It is my intention to consider but two phases of this subject; namely, the value of symptoms and murmurs and the treatment.

Symptoms taken without regard to the previous history are absolutely of no value. Compensation is so easy in the child, that the lack of symptoms will not be proof that disease of the heart is absent. Grave damage may be and often is done to the heart, without any marked symptoms being present. Realizing that such is often the case, and that many children grow up apparently healthy as far as the circulatory apparatus is concerned, until a time arrives when the heart is taxed to its limit, and that then a long-standing diseased condition is evidenced, it behooves us to become eternally vigilant.

It is imperative that we carefully examine and reëxamine the cardiac condition during and after every acute illness in the child.

It is only by this means that we will be able to detect a trouble at the time when there is much hope for relief; in its incipency.

This examination should be particularly careful after an attack of rheumatism, or its side partners, tonsillitis and chorea.

This statement naturally emphasizes the need for an early diagnosis of rheumatism; not alone an early one, but also a correct one. As a rule, the younger the patient, the greater the danger to the heart. It is a great mistake to expect the arthritis to predominate in the acute rheumatism of children; it is the subcutaneous tendinous nodules, and the tendency to endocarditis and pericarditis that really predominate.

When there is the slightest reason to presume that a diseased condition in a child might even remotely be due to, or complicated by, a rheumatic condition, great care should be used to get the family history in detail, for a possible predisposition.

Anemic murmurs are rare before the fourth year and not common up to the time of puberty, when they become very frequent. But even in older children, we should be positive of an anemia being present, exclude the possibility of one of the acute infectious diseases developing, and then demonstrate a murmur that is most intense at the pulmonary valve and purely systolic.

It is impossible to make a diagnosis from the murmurs alone. Organic valvular disease may be present to a considerable degree, without the presence of a murmur. This is also true of mitral stenosis.

Endocarditis does not of necessity mean that we have a valvular lesion, and in our diagnosis we must rely to a great extent upon the character of the fever and the previous history of the case.

Treatment.—It is rarely that the diseased condition requires medication, and when it does it is usually only to tide over an emergency. Even under these circumstances, the dose given, as a rule, far exceeds the need.

What is ever accomplished by whipping up the heart of a child with large doses, or in fact any dosage of strychnine or digitalis, except in the presence of immediate danger, I am at a loss to know.

The results that are aimed for, are more quickly and permanently accomplished by other measures, which in turn, do not further injure the heart.

As far as drugs are concerned, in the prolonged treatment of heart disease in an infant, I would prefer to rely upon the bromides, aconite, morphia, and veratrum viride, than upon many of the more commonly used drugs, as strychnia, digitalis and alcohol. Tonics rise superior even to any of these.

I think that we can safely state it as a fact, that three-quarters, if not more, of these cases, can be successfully treated by rest and an intelligent use of water, topically.

Enforced rest and prolonged rest are important adjuncts to our management of these cases. These are the most important preventive measures we can employ.

Hydrotherapy should find an enlarged field for use in the treatment of these affections.

For the purposes of brevity and discussion, we will refer without going into detail, to some of the more serviceable measures, and their indications. In pericarditis and endocarditis, occurring as a complication to the acute febrile disorders, as far as the heart is concerned, our object should be to relieve the strain put upon it and to reduce to a minimum the damage that the toxins will have upon it. This will be favored by exciting a proper tissue activity, the promotion of the general nutritive changes, the encouragement of absorption and repair, and finally by a reduction of the heart beats.

All of these are accomplished quickly and steadily, without distressing after-effects, by a fomentation, of a temperature of 140° to 160° F., applied over the heart for twenty-five or thirty minutes of every hour. The skin should be previously protected by rubbing with vaseline. The application at first stimulates heart action, but in a few minutes the sedative effect is apparent.

This might be followed later, if necessary, by an ice-bag, or better, by the cold compress. Applied five minutes out of every fifteen, its effect as a heart energizer is quite marked. It is peculiarly efficient in insufficiency, and can be safely adopted in all cases, except where there is degeneration of the heart muscle.

In acute endocarditis and myocarditis much will be gained by the maintenance of surface circulation, to relieve the heart.

At the same time the heart needs to be energized within the limits of safety. Apply cold to the head, then have the body rubbed with a coarse towel, wrung out in cold water, applying the friction gently but thoroughly.

Apply then, almost continuously, cold precor-

dial compresses, rubbing the surface each time the compress is renewed. Augment this by general cold friction, as applied at first, repeated every four to six hours.

Do this and the need for the use of digitalis, strychnia and alcohol is gone, and their undesirable after-effects are avoided.

Digitalis and strychnia increase the work of the heart, at the same time that they appear to energize it; alcohol lowers the blood pressure in place of raising it, and adds to the toxic elements already in the blood. All these things are just what we ought to avoid.

To recapitulate:

Functional disorders are few and unimportant. Symptoms, as such, are of little value.

Great care should be exercised to examine all cases, where there is the slightest possibility of trouble ensuing.

Murmurs alone are of little value in the diagnosis.

Too many drugs are given, and in too large doses.

Rest is a prime essential in the treatment.

Hydrotherapy offers a rational and effectual field, as a preventive and curative measure.

DISCUSSION.

DR. SHIPLEY: My own experience accords fully with the point made so strongly by the reader of the paper, that acute rheumatism is the most important factor in the heart troubles of children. I am impressed so often with the fact, that we may or may not get murmurs, in these cases. Their value is certainly doubtful. For treatment, I rely largely upon small doses of *nux vomica*: 1 to 2 minims of the tincture t. i. d.

DR. WHEELER: I recall a case I saw recently, of a woman with an acute rheumatism, occurring three weeks after labor. The nursing baby developed some fever, pain in the joints, and a decided apex murmur. There was a rally from the acute attack, but the child gradually grew worse and died at six months.

DR. NORTHIDGE: There is no doubt, that as Dr. Kerr says, rest is most important, in the treatment. But digitalis in the proper doses, is very important also; tending to rest the heart.

DR. PARRISH: I wish to emphasize the point made in the paper, that the rheumatism of children, occurs almost always without joint symptoms. Also that the frequency of an endocarditis after rheumatism and scarlet fever is marked.

I use digitalis if the pulse is rapid and feeble and it does good; if it is rapid and strong, the drug does little good.

DR. READ: I think that I can demonstrate (and will try to do so at the next meeting of this section), that every child that has an acute rheumatism, has also an endocarditis.

DR. LITTLE: In examining the heart, previous to the giving of an anesthetic, particularly in adenoid cases, I nearly always find some functional murmur; it is a most common condition.

The general tonic treatment of this class of cases is very important and is of value. As regards the use of digitalis; where the heart is being overworked, it is a valued aid in the management.

If *nux vomica* is used at all, as suggested by Dr. Shipley, it has to be used in very large dosage. One minim represents about $\frac{1}{1000}$ gr. of strychnine. We get practically no strychnine effect; simply a tonic effect on the stomach. So what is the use of giving it at all, unless in the dose that will be reasonably sure of doing the work; a larger one than it is the usual practice to use.

THE BROOKLYN PATHOLOGICAL SOCIETY.

HENRY G. WEBSTER, Editor.

438th Regular Meeting, February 12, 1903.

PROGRAM.

An Interesting Case: Result of Injury to Eyeball Fifteen Years Ago. Dr. J. W. Ingalls.

A Unique Case of Expulsion of Eyeball from Orbit in a Patient with "Bright's Disease." Dr. J. A. Kene.

Glioma in Infants. Dr. L. A. W. Alleman.

Panophthalmitis with Orbital Cellulitis, with Slides. Dr. J. Scott Wood.

The President, DR. ARCHIBALD MURRAY, presided.

There were about twenty members present.

A CASE OF CRYPTO-GLIOMA OF THE RETINA.*

L. A. W. ALLEMAN, M.D.,
Brooklyn, N. Y.

The patient presented here this evening, a female child of Russian parents, 16 months old, first came under my observation at the Polhemus Memorial Clinic on January 29, 1903. The following history was obtained from the parents:

When the child was three weeks old, a white spot was noticed in the pupil of the right eye, about three months later the eye became inflamed and looked like "raw meat," as the parents expressed it; the eye gradually "swelled up," and the child was then taken to a doctor, who opened the "blister," after which the inflammation subsided, the eye shrunk gradually until it assumed its present appearance, and has since been entirely free from irritation.

When the child was a year old, a similar white spot was seen in the left pupil (white reflex), which has become slightly more noticeable, and on this account the child was brought for advice.

The family history is negative. The father is thirty-one years old, and the mother twenty-four years, both apparently in robust health; this patient is their first child, and she is remarkably well nourished and good natured, and presents no visible lesion save a slight eczema; has never been ill, nor can any history be obtained of any previous illness, nor any condition which could cause a metastatic choroiditis.

At first glance the appearance of the eyes suggests that the right is microphthalmic, but on examination it was found to be atrophic; the ball is shrunken and soft, the iris atrophied; pupil dilated, and the remains of the lens and other detritus can be seen in the pupillary space by focal illumination.

At the upper nasal sclero-corneal junction a scar is visible, probably indicating the point at which the rupture of the globe took place.

On the whole, the eye presents no unusual features, and suggests nothing more than an ordinary phthisical bulb.

The left eye is normal in appearance, save that at times there is a slight nystagmus, the pupil responds promptly to light, but dilates very slightly under homatropin (I did not use atropin because the tension was slightly +).

There is no red reflex obtainable from any part of the fundus, although the yellow white reflex is slightly tinged with pink on the temporal side.

Both by the ophthalmoscope and by oblique illumination, a yellowish white mass can be made out on the nasal side extending well forward toward the ciliary region. The tumor is not well defined, shading off into the fundus, but at its apex it is somewhat irregular although not distinctly nodular, and gives one the impression that it is a neoplasm, although a thorough inspection of the growth is not possible.

A vessel is seen to emerge from the mass and bifurcate, but is soon lost either from re-entering

* Read before the Brooklyn Pathological Society, Feb. 12, 1903.

the mass, or because its walls have become sufficiently degenerated to obscure the blood current.

No further details can be made out in the fundus, but a surprising amount of vision remains, which enables the child to readily grasp objects, and to avail itself of any assistance afforded by its surroundings, when endeavoring to walk.

An examination of the fundus is rendered extremely difficult by the child's restlessness, and by its constantly following the mirror during the examination, but I believe that the loss of detail in the fundus is due to numerous fixed opacities on the posterior capsule of the lens and in the vitreous, some of which resemble cholesteroline. Neither eye is sensitive to pressure, and the tension of the left eye is slightly elevated (T. + 1). The color of the iris is bright, and there is no injection of the conjunctiva.



The term crypto-glioma of the retina was introduced into ophthalmic literature by Schoebl in 1893 to designate a variety of retinal glioma, characterized by a period of quiescence between its initial and terminal stages of activity, during which the eye presents a picture, so similar to one of uncomplicated atrophy of the globe, that a diagnosis is often one of the most difficult problems in ophthalmic practice.

Glioma of the retina has been recognized, clinically, from very early times, and has been described under the terms, fungus hematoids, cephaloid, cephaloma, etc., but since the enunciation by Virchow, of the doctrine of neuralgia, it has been generally accepted under its present designation, as a malignant tumor, originating in the supporting structures of the retina, most frequently from the inner nuclear layer.*

Glioma consists of small, round cells, and its origin is ascribed by Greeff to an accumulation of

cells, which in the embryonal retina were dislodged from one stratum into the other, and is, therefore, "a tumor due to a malformation of the retina."

Glioma of the retina is a rare disease; among half a million patients seen in various clinics of the world, only two hundred cases were reported, being one in 2,500 cases, and when we consider that in twenty-four cases in which a diagnosis of glioma has been made at Moorfield Hospital from 1888 to 1892, the microscope proved seven of these to have been pseudo-glioma, we may conclude that even this small percentage is too high, while one's personal experience must of necessity be small, and unreliable as a guide in estimating the relative frequency of the more unusual forms of ocular disease.

Wintersteiner has tabulated the following cases in which the origin of the gliomatous growth could be traced with this result:

(a) Origin in layer of optic nerve fibres..	5 cases
" " inner nuclear layer.....	19 cases
" " any of the inner layers of	
the retina.....	12 cases
Total.....	36 cases
(b) Origin in outer nuclear layer.....	9 cases
" " layers of retina.....	3 cases
Total.....	12 cases

One in 10,000 to 15,000 cases of eye disease would more nearly indicate the proportion of cases of glioma which have come under my personal observation; and if we accept Schoebl's classification of crypto-glioma, this variety of the disease is assuredly one of the most unusual conditions met with in ophthalmic practice.

Glioma is always found in infancy or early childhood, and is frequently congenital. In a series of 460 cases collected by Holmes* in 67 per cent. of the disease developed during the first three years of life, and it is set down as the result of careful investigation (Holmes) that we may assume an error in diagnosis when glioma is reported as a primary growth in a patient over sixteen years of age.

Clinically, glioma is somewhat similar to sarcoma, although they are pathologically distinct, and are developed according to Klebs, from different germinal layers.

When the tumor extends beyond the retina it sometimes changes its character; often the cells increase in size, thus more nearly resembling those of small round-celled sarcoma; this modifi-

* Česká Akademie—In Bohemian.

* Holmes—Tr. Oph. Section A. M. A. '02 p. 383.

cation in character is probably responsible for the mixed cases, so-called glio-sarcoma, glio-fibroma, and the like; but while confined to the retina, the characteristic feature of glioma is that it not only displaces other tissues in its development, but replaces them by its own substance; it is not a tumor forcing itself into the retina, but one originating and developing in the retina itself.

Glioma as a rule develops in both eyes; out of 87 cases (Holmes) both eyes were involved at birth in 16, of the remaining 71 cases, 65 developed the disease in both eyes during the first three years of life, it does not, however, invade the fellow eye by extension along the optic nerve, but always develops independently.

The clinical picture presented by cases of progressing malignant disease is so familiar to you all, that I will not detain you by dwelling on this feature.

Roughly the disease may be divided into three stages: 1. Intra-ocular growth, with no inflammatory manifestations or increased tension. 2. Increased tension ending in rupture of the globe, necessarily inflammatory. 3. Extension and metastases.

It is in the presence of an interval between the second and third stages that crypto-glioma differs from ordinary glioma, and the difference is probably due to the accidental obliterating of nutrient vessels, rather than to any fundamental departure from the usual type, yet the accident produces so wide a divergence in objective manifestations, that Schoebl is justified in his classification of crypto-glioma as a clinical type.

This author recognizes three types of the disease, according to the manner of anatomical growth.

1. *Simple glioma of the retina.* 2. *Glioma retinae luxurians.* 3. *Crypto-glioma of the retina.*

The first form is the most common, and is characterized by the early occurrences of regressive metamorphoses. The cells become necrotic, and the older parts of the growth undergo retrogressive changes, such as fatty degeneration, calcification, caseous or colloid degeneration, and hematogenous pigmentation.

The walls of the blood vessels in these parts also degenerate, and hemorrhages take place. The tumor, however, continues to grow in other directions and invades adjacent structures.

Glioma Luxurians is less common, and it is characterized by the later appearance and less rapid development of the regressive metamorphoses.*

Crypto-glioma is a term suggested by Schoebl to describe a very rare and masked form of the disease, which by microscopic examination he has demonstrated to be a variety of true glioma. I quote his description of the condition.

"At first the cases grow after the first type, enter the vitreous chamber, and may fill the eyeball, and be disseminated into the choroid and the optic nerve.

They then undergo regressive metamorphoses from a tendency of their own which may be favored by inflammatory processes in the eyeball, such as irido-cyclitis and chronic panophthalmitis.

After the primary growth has thus degenerated, the fluid parts of the eyeball may be absorbed and the eye shrink in consequence of the inflammatory process, so that it presents the picture of progressive bulbar or anterior or complete bulbar phthisis.

After a varying interval the disseminated patches in the choroid or optic nerve, or in both, begin to grow again. They then fill the eyeball, increase in size again, break through it, and lead to the well known end.

The point of greatest practical importance in a case of glioma, is the diagnosis. In many instances in the early stages of the disease this is not difficult, but other cases present problems of the most trying character. It is less important to differentiate glioma from other forms of malignant disease, than from so-called pseudo-glioma, which is the result of a previous suppurative process in the interior of the eye.

The presence or absence of vessels, the character of the growth, the color of the tumor, the tension of the globe, and the condition of the iris, are important guides, but in cases which have progressed to a stage where, through loss of transparency of some of the media, an inspection of the interior of the eye is no longer possible. We may often be misled, as evidenced by an examination of twenty eyes* removed by expert diagnosticians for glioma retinae, which failed in 25 per cent. to show any evidence of malignant disease.

This difficulty in diagnosis is far greater in the class of cases of which the one here presented is an example, if seen during the stage of quiescence, and it is, I believe, impossible for any one to make a positive diagnosis of crypto-glioma during the atrophic stage.

There is an entire absence of the characteristic symptoms, the eye is free from pain and tenderness, and it is only in view of the history and the presence of a growth in the fellow eye, which I

* *Centralblatt f. Augen.* 1897, p. 179.

* In the collection of Otto Becker, Heidelberg.

believe is without doubt a glioma, that I feel justified in presenting this case as an example of this most unusual condition.

The all important consideration to which our study of these cases is a necessary preliminary is, naturally, the treatment, which resolves itself into the question of the removal of the diseased organ. As in all cases of intra-ocular malignant disease the result of which may be expected from operation will depend largely on the stage to which the disease has progressed.

The prognosis after operation in cases of glioma is not without encouragement if the eye is removed during the first stage, and many successful cases are on record, three years seeming to be the limit of possible recurrence.*

After rupture of the globe, the removal of the eye will, in most cases, fail to arrest the disease, which has probably extended beyond the globe, this being the usual method of progression, although metastases do occasionally occur.†

When but one eye is involved, and that organ damaged beyond all hope of future visual usefulness, there is little responsibility involved in advising enucleation, but when the disease is bilateral and more especially when, in one or both eyes useful vision is still present, the responsibility devolving upon the surgeon is appalling.

In the endeavor to save the patient's life we must condemn them to blindness, and with the record of diagnostic errors perpetrated by the most experienced men in our profession as a warning, it is not a matter to be passed upon inconsiderately.

My personal feeling is, that, while I am most emphatically in favor of an early and radical operation in all other cases of malignant intra-ocular disease, in a case of glioma involving both eyes, in which useful vision is present, the removal of the eyes should be deferred, if there is the least reasonable doubt as to the diagnosis.

When fully convinced of the malignant nature of the disease, we should place the facts before the parents of the child and let them make the decision, and I would experience no regrets should they decide against an operation.

We, as physicians, are under the professional

obligation of preserving life at any cost, but were it possible for us to retroactively make this decision for ourselves, who among us would choose a life of darkness?

Death we must sooner or later meet, but a life of groping dependence is to me a calamity, with which all other human ills seem trifling in comparison.

NOTE.—Some very remarkable results have been reported from the employment of the X-ray in the treatment of malignant disease, and at this meeting, Dr. J. S. Wood told me of a case of glioma under his own observation, which had been much improved, so far as could be judged by ophthalmoscopic examination, by this treatment. I judged this a favorable case for experimentation, and have succeeded in interesting Dr. J. C. Bierwirth in the case, who now has the child under treatment with the X-ray.

Discussion.

DR. J. SCOTT WOOD: I must confess that I know little from actual experience of these cases. It certainly does not conform to the ordinary clinical requirements of glioma.

DR. INGALLS: It is interesting to note that one eye presents an ordinary, the other a crypto-glioma. I quite agree with Dr. Alleman that operation is not yet justifiable.

DR. J. D. PROUT: I have not seen any cases of so-called crypto-glioma, but in regard to errors in diagnosis, I recall the case of a child who was carried around to the different doctors in New York and Brooklyn, and I think most of us decided it was a case of glioma, but the father decided that he would not have enucleation done, and I am very sure that young lady is still alive with a shrunken eyeball. It was not a case of crypto-glioma. Crypto-glioma is a recrudescence and swelling up. It is a true latency of glioma cells, that simply waits its turn and breaks out.

I had a case of the ordinary form of glioma at the Eye and Ear Hospital, in which I enucleated the eye. The case went out of Brooklyn and afterward died.

In the treatment of such a case as this I must confess that I feel as Dr. Alleman does, I should feel much like letting it alone, because I do not like to operate in hopeless cases. Living in blindness seems to be of questionable benefit. I do not know what life in that case is worth, but blindness is one of the greatest afflictions. If there is an error in diagnosis the child will recover with shrunken eyeballs.

To be continued in next issue.

* Collins, Tr, Oph. Sec. V. K. XVI pp. 142.

† In 530 cases collected by Wilson, "Archives of Oph." Vol. 29, p. 92—61 cases of metastases were observed, situated as follows:

Cranial and facial bones.....	38	Lymph Glands, mesenteric,	
Brain	13	mediastinal	10
Cervical glands.....	7	Parotid glands	8
Liver.....	7	Skeletal bones.....	7
Ovaries.....	2	Submaxillary gland.....	2
Spleen.....	1	Kidneys.....	2
Lung.....	1	Spine.....	1
		Location not mentioned.....	1

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed BROOKLYN MEDICAL JOURNAL, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, MAY, 1903

TENT HOSPITAL TREATMENT FOR CONSUMPTIVES IN THIS CITY.

The month of April witnessed the inauguration of the tent hospital plan of treatment on Blackwell's Island. On the lawns of the Metropolitan Hospital, several tents especially constructed have been erected, and as many as possible of the four hundred consumptive patients occupying the wards have been transferred to tents. Within the present month it is planned to have one hundred patients under canvas.

In several European cities the tent hospital plan of treating tuberculosis has been employed with advantage for several years, with the ultimate recovery of a large proportion of patients.

This is the first tent hospital to be erected by a city for its poor in the United States.

The credit for its installation here is largely due to the Charity Organization Society's Tuberculosis Committee. Dr. Lederle is also active in the establishment of this work which, it is hoped, will be largely augmented by his plan of a similar institution on a large scale in Orange County, where a tract of twenty acres has been offered to the health department for two years, without rental.

A solarium is also at present in course of erection on Blackwell's Island, where tuberculous patients may enjoy the further advantage of daily sun baths.

RABIES IN NEW YORK AND BROOKLYN.

A number of cases of rabies and a few of hydrophobia recently occurring in New York and Brooklyn have created considerable excitement in certain quarters. The public press continues to report every case of dog-bite as a probably direct outcome or an indication of the presence of an epidemic of rabies in Greater New York.

The dread of hydrophobia as a cause of death is strangely out of proportion to that of other diseases, among which it figures as a mere trifle in mortality statistics the world over. The fear is in large part due to the traditional terror excited by the external aspect of the disease in all times and in every country.

The almost universal dread of a disease so fatal is a factor to be reckoned with; and in order to prevent unnecessary alarm, the authorities in charge should omit no efforts to ascertain an accurate diagnosis of every case of reported rabies. Suspected animals should be quarantined until the possibility of a development of the disease has elapsed.

London, within a few years, has undergone a season of mad-dog fright, apparently because the authorities failed in an early realization of their duties. Many valuable dogs were sacrificed to an unduly developed terror of the disease and public opinion forced the passage of unnecessarily stringent ordinances relative to dogs.

In Greater New York the responsibility for the apprehending of stray dogs is vested in the Society for the Prevention of Cruelty to Animals. This society has recently come in for a large share of criticism because of charged inefficiency in its function of official dog catcher.

A number of persons have recorded in the newspapers their belief that a return to the old-time method of employing dog-catchers would be preferable to the state of affairs existing under the control of the society.

A prominent New York physician whose child was bitten in the street by a rabid animal has charged the society with cultivating a sentiment in favor of the dog at the expense of sentiment in favor of children.

To these criticisms the society has displayed a surprising lack of tolerance. Through one of its officers it has replied to the charges of at least one of its critics, with more vigor than good manners. This is unfortunate, since these acrimonious discussions have revealed a lack of harmony between the Veterinarians of the Board of Health and the Society for the Prevention of Cruelty to Animals. The attitude of the latter is at least hardly consistent with the dignity of a society engaged in work of the humanitarian sort for which it was organized.

The society, however, deserves credit for its work in the seizure of stray dogs and cats, the latter being quite as important as the former from the point of view of spreading disease. It is also to be noted that the task of apprehending

stray cats has been assumed on the society's own initiative.

A reference to a report of the society shows that in 1902, it removed from the streets 29,648 diseased, starving or homeless dogs. It also took charge of 61,020 cats.

The society receives for its work no appropriation from the city or State. Its president states in a circular that, "Its usefulness could be largely increased and the field of its labors indefinitely extended if it had a more adequate pecuniary support." This quotation is supposedly not a statement referring to its work of apprehending stray animals, for an admission of the kind would leave the society open to the charge of being unable to properly perform the duties which it has assumed. If the duty of the society in protecting the public health is handicapped by lack of sufficient funds, it should promptly lay down its self-imposed task. If stray dogs suffering from rabies are allowed to go unapprehended because of a low state of the society's treasury, the blame must ultimately fall upon the city government which has entrusted a duty fraught with such grave possibilities to a private corporation serving without pay, and consequently, without the necessity of accounting for its actions directly to the municipality.

CERTIFIED MILK.

Certified milk may be ordered from the following dealers:

H. S. Chardavoïne, 406 Court street; telephone 151 Hamilton avenue.

Diamond Dairy Co., 6th avenue and Pacific street (and all branch stores); telephone 1633 Main.

Wm. F. Evans, 250 Hewes street; telephone 756 Williamsburgh.

Meadow Brook Dairy, 984 Fulton street; telephone 563B Bedford.

Isaac W. Rushmore, 100 Atlantic avenue; telephone 2420 Main.

By action of the Medical Society of the County of Kings the names of dealers furnishing certified milk will be month by month published in the JOURNAL. As other dealers take up the supplying of certified milk their names will also be included in the list.

Ray Bill Fails to Pass the Senate.—The Ray Bill, designed to raise the standard of education among physicians in Pennsylvania, has been shelved by the State Senate after passing the House by a vote of 126 to 13. It is claimed that some of the lower standard medical schools, through their political influence, succeeded in killing the bill.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor, before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

Dr. Joseph H. Hunt has returned to Brooklyn after an absence of several months, and has at once resumed his practice.

Dr. Martin Linderoth has removed from 50 to 69 Greene Avenue. He will devote himself exclusively to ophthalmology.

The annual meeting and dinner of the alumni of the Long Island College Hospital will be held May 9, at the Pouch Gallery. Dr. J. M. Van Cott will preside. Among the speakers will be ex-Corporation Counsel Joseph A. Burr, Frederick B. Pratt, Dr. J. A. McCorkle, Rev. J. T. Belford, Rev. D. Rogers, and possibly Simeon Ford.

A week later, May 16, at the Polhemus Clinic, will occur the annual scientific session of the alumni. The program as arranged is: "Gonorrhea in the Female Pelvis," Dr. William E. Butler; discussed by Drs. A. Palmer Dudley and William R. Pryor, of Manhattan, and others. "Twentieth Century Medicine," by Dr. John R. Stivers.

Dr. Burdette O'Connor, L. I. C. H., '94, formerly of Brooklyn and now of Butte, Montana, visited in this city recently.

On March 29, Dr. Moritz W. Dreyer, of 60 McKibben Street, was married to Miss Eugenie Sachs, daughter of Dr. and Mrs. Nicolas Sachs, of New York City.

Dr. Henry Wallace, of Clinton Street, who has been living at Tombstone, Arizona, for the past year, on account of his wife's health, has returned, and reports the excellent health of his wife and himself. At present Dr. and Mrs. Wallace are South, but intend to return soon to Brooklyn for their permanent residence.

Dr. B. Onuf, of 99 Berkeley Place, has been appointed Pathologist to the New York State Craig Colony for Epileptics.

Dr. James P. Warbasse has been appointed full attending surgeon to the German Hospital, of this city.

Dr. John D. Rushmore has been appointed Professor of Clinical and Operative Surgery, in the

Long Island College Hospital, ranking as full attending surgeon.

The Medical Library Association of Brooklyn has elected the following officers: President, Frank E. West, M.D.; Vice-President, James P. Warbasse, M.D.; Secretary, Albert M. Judd, M.D.; Treasurer, John C. Mac Evitt, M.D.; Executive Committee, Lewis S. Pilcher, M.D.; Chairman, George McNaughton, M.D.; Secretary, John E. Sheppard, M.D.; James McF. Winfield, M.D.; William Browning, M.D.

The marriage of Dr. James P. Warbasse and Miss Agnes Louise Dyer took place in the Church of the Holy Trinity, April 15.

Dr. Walter C. Wood has been appointed Professor of Surgery in the Long Island College Hospital.

Dr. James Cole Hancock is recovering from a severe wrench of his knee, aggravating an old trouble in that locality. The doctor after three months' treatment intends resuming his active practice about May 1.

The Ex-Internes of the Long Island College Hospital held their annual dinner and reunion at the Clarendon Hotel April 20.

The Association of the Ex-Internes of St. John's Hospital was formed at a recent dinner at the Montauk Club. Officers elected were: Dr. Rupert Royce, President; Dr. W. L. Duffield, vice-president; Dr. A. H. Langstreet, secretary and treasurer. Drs. William S. Hubbard, Stewart Lewis, and F. H. Knight were appointed a committee on permanent organization. The association has both a professional and social side.

Dr. Jerome B. Thomas (L. I. C. H., '92), in a recent letter says: "I am at present Disbursing Officer and Superintendent, as well as Attending Physician and Surgeon of the U. S. Civil Sanitarium at Baguio, Benquet province, Philippines. The main building holds sixty people, and five large adjunct cottages are almost finished. These latter will be occupied by Governor Taft and the other Commissioners and their families. The establishment of this sanitarium solves the problem of the residence of Americans in the P. I., and will add greatly to the efficiency of our civil service. The climate is so fine and bracing that a three months' sojourn will enable white men to spend the other nine months of the year in Manila in comfort and health. It is the continued high temperature that enervates our fellow countrymen who are trying to work here."

Dr. Charles M. Neisley, of Manhasset, L. I., and well known to members of the Associated Physicians of Long Island, had a narrow escape

from death in a recent automobile accident. While descending a steep hill, the doctor lost control of his machine through breaking of the side-bar. Dr. Neisley, with his two children, was thrown out and lay unconscious. He sustained a bad fracture of the right arm, and other serious injuries. The children were unhurt. At last accounts the doctor was reported out of danger.

Dr. Louis N. Lanehart, of Hempstead, who was recently operated on for gall-stones, has so far recovered as to leave the hospital. He will take a short vacation before resuming his active work.

Dr. Walter L. Truslow, of Clinton Street, has made arrangements to lease the John T. Martin gardens, corner of Hicks and Montague Streets, for a playground for the Heights babies and children. Its use will be restricted to Heights families, each family enjoying the privilege being charged a nominal fee.

Dr. Howard A. Kelly, of Johns Hopkins Hospital, has entered suit for \$2,000 against the Western Union Telegraph Company, because the alleged negligence of the company prevented him from attending an important surgical operation. Dr. Kelly was on a through train from Boston to Baltimore. While en route two telegrams were sent him, one addressed to New Haven, Conn., and one to Trenton, N. J., telling him to come to Cambridge, Md., to perform an urgent operation. He was told to leave the Boston express at Wilmington, Del., and take a train there for Cambridge, Md., and that his assistants would be on this train with all the necessary instruments. Neither telegram was delivered, Dr. Kelly going directly to Baltimore. The operation was not performed.

The American Urological Association meets the first Wednesday of each month, except July, August and September. The annual meeting this year will be held at New Orleans, May 8 and 9. The officers for 1903 are Ramon Guiteras, president; William K. Otis, vice-president; Ferd. C. Valentine, secretary; John Van der Poel, treasurer.

The Royal Arcanum of Queens and Nassau Counties proposes to endow a "Royal Arcanum Hospital Bed" in each hospital of Queens and Nassau Counties. Any member of the Arcanum who may be injured or seriously ill may occupy these beds. The cost of maintaining these beds will be defrayed by voluntary subscriptions from each council, and from the proceeds of entertainments on "Arcanum Day," June 23.

Mr. William T. Wardwell, president of the New York Red Cross Society, has presented the

society with a \$100,000 plot of land at 100th Street and Central Park West, Manhattan, on which to erect the new Red Cross Hospital. The proposed building will cost \$60,000, the plans of which have been drawn by Woodruff Leeming, of Brooklyn. The hospital will be six stories in height and have room for 100 beds.

The Homeopathic Medical Society of New York County by a unanimous vote at its last meeting called upon the Legislature to pass the Stevens bill for the unification of the State's educational supervision under the Regents.

Dr. Lederle, president of the New York Health Department, has urged Mayor Low to establish a sanitarium for the treatment of tuberculosis on the tent and ducker plan. (A ducker is a canvas house on a wooden frame, so named after its inventor). Dr. Lederle says 8,883 persons died of tuberculosis in New York City in 1902 and 8,135 in 1901. He thinks the time has come when the city should increase its facilities for treating tuberculosis, and has been much impressed by the opinions of leading physicians with regard to the efficiency of the open-air treatment. Apropos of this, the following clipping from the *New York Medical Journal* is interesting: "Dr. J. B. Ranson, of the Clinton State Prison at Dannemora, recently testified before the Ways and Means Committee of the New York State Assembly that one-fourth of the population of the prison is affected with tuberculosis."

Dr. Joseph H. Raymond announces that the crop of mosquitoes will be earlier than usual this year. In this connection it is interesting to note that Mr. William C. Whitney, ex-Secretary of the Navy, began recently the enormous task of reclaiming the vast territory of marshes in Jamaica Bay, Sheepshead Bay, and the Coney Island districts. The plan includes draining the meadows, diking and clearing out pest holes for breeding mosquitoes. The Board of Health will coöperate with Mr. Whitney. Manhattan Beach, Brighton Beach, all the race-tracks and the summer resorts at Bergen Beach, Canarsie and on Coney Island will be benefited by this philanthropy. The scheme means several years' work with an immense outlay of capital.

Dr. Margaret S. Halleck, of the New York State Reformatory for Women, in the *Medical Record* reports successful cures of morphine habits by the use of strychnine sulphate, hyoscine hydrobromate, and codeine sulphate in combination. The morphine was withdrawn at once from all the victims and the above prescription given

successfully in four cases, with no relapse to their former habit.

The directors of the Manhattan Eye and Ear Hospital have issued an appeal to the public for the sum of \$200,000 to assist in the acquisition of a new site and the erection upon it of a building affording the enlarged facilities now necessary owing to the increase in the scope of the work of the institution.

Jonathan Hutchinson, F.R.S., of London, has returned to England after a tour of investigation in India, as to the cause and prevention of leprosy, and especially in reference to the hypothesis that unwholesome food is the foremost cause. Twelve years ago the Prince of Wales' Committee rejected this hypothesis, but Dr. Hutchinson's latest investigations have convinced him that the committee would not have rejected it, if it had pursued its researches more deeply. From carefully prepared statistics embracing much labor and travel, he concludes that fish-eating is a powerful etiological factor in the production of leprosy, and believes that he finds support of this theory especially in India.

The report of the Registrar-General for Ireland on the prevalence and distribution of cancer shows that there has been a steady increase in the disease in that country. The number of deaths in Ireland in 1871 from that cause was 32 per 100,000 of the population; during 1891, 46 per 100,000; and during 1901, 65 for the same approximate figures. In England and Wales the death rate between 1871 and 1900 rose from 42 to 83 per 100,000, and in Scotland from 44 to 80. The Registrar points out certain facts, which have been substantiated by the information he has collected. He says: "Cancer is spread or generated by unwholesome food in dwellings which are generally in an unsanitary condition. Wounds and injuries are sometimes provocative of the disease, as is irritation of the lips by excessive smoking; but cancer generally seems to be a constitutional disease. Where one member of a family has been affected by cancers, others often suffer with tuberculosis, and sometimes even with epilepsy, lunacy and idiocy. In many cases it is hereditary, and also to a certain extent infectious. It has been contracted through the lips by using the pipes of sufferers. More than one case has been observed to occur in different families living in the same house, or among those who go from one occupation to another, so I seem to be justified in concluding that the disease is to some extent contagious and infectious." Many English doctors are now convinced that the eating of pigs' flesh in different forms is

greatly responsible for the increase of the disease, pointing out that it is most common among the poor, whose chief meat is that of pigs, which is also the case in Ireland, while the disease is extremely rare among the Jews.

The following resolutions were adopted at a meeting of the American Association for the Study of Inebriety, held in Boston, Mass., December 18, 1902:

Resolved, That it is the sense of this association that the indiscriminate sale and use of patent medicines and so-called "cures" for the alcohol and opium habits are not infrequently the cause of the formation as well as the continuance of these habits.

Therefore be it resolved, That this association memorialize the proper authorities not to issue any patent or proprietary right to any one desiring said patent or right for any remedy or medicine or "cure" or any compound whatever containing alcohol, opium, or other narcotic drug in which there is danger of habituation from its use.

Resolved, That all proprietary or patent medicines for which a patent is issued have a label on which are distinctly printed the ingredients of said preparation; said label being placed or affixed to the bottle, box, or wrapper in which said preparation is dispensed; and furthermore, that a heavy penalty of fine or imprisonment, or both, be imposed upon any one who may manufacture, prepare, buy, or sell, or have for sale in stock, all such preparations not duly patented and labeled under conditions specified.

Resolved, That we reaffirm and indorse a resolution passed at a meeting of this society held March 23, 1893, in reference to the licensing and proper inspection of all institutions for the care and treatment of inebriates, morphia habitués, or other form of narcomania.

Resolved, That a copy of these resolutions be published in the medical and secular press.

The almost fatal illness of a boy as a result of eating a number of laxative pills which had been left at the doors of houses by an agent of a patent medicine firm, is evidence of the extreme laxity of the laws regulating the distribution of samples of patent medicines. The boy followed the agent and gathered up the packages under the impression that they were candy. He proceeded to eat quite a number of the pills, and on reaching home became violently delirious and totally blind, probably from the belladonna and strychnine, so the family physician declared.

AN ESSAY UPON THE GENERAL PRINCIPLES OF PREVENTIVE MEDICINE,

BY W. WAYNE BABCOCK, M.D.

Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia; Pathologist Kensington Hospital; Assistant Pathologist Philadelphia Hospital, etc.

Awarded the first prize of one thousand dollars in the competition instituted by The Maltine Company.

(Continued from p. 210.)

Insects may (1) *mechanically carry* parasites; may (2) *inoculate* them by biting or stinging, or may (3) serve as *intermediate* or definitive hosts. These three means of disease transmission have been positively demonstrated by clinical and laboratory experimentation, for at least a number of diseases. Insects probably have an important rôle in the transmission of other diseases, as yet little understood.

Insects as Carriers.

Many experiments have shown that flies, fleas, roaches, bedbugs, and other insects, in walking over infected surfaces pick up bacteria upon their feet, legs, wings, bodies and other parts, and that they may transmit these organisms for considerable distances, contaminating distant articles with which they come in contact. With certain microorganisms it has been found that the insect may still transmit the living parasite after a period of several days. Not only may the insect carry organisms upon the outside of its body, but it may ingest large numbers of bacteria, or of the smaller animal parasites or their ova, and later deposit them in its dejections at perhaps a very remote place. The numbers of organisms found in the dejections, in certain instances, have even suggested that the bacteria undergo multiplication in the insect's body, but this has not been proved. More often it seems that the parasite undergoes degenerative changes in the intestinal canal of its host, so that if it be not deposited with the dejecta within a few hours, or at most a few days, its death occurs. This has been observed especially in connection with the *anthrax bacillus*, but it probably does not hold true for all bacteria. Instead of being discharged from the body, the microorganisms may be liberated by the death and disintegration of the insect.

By one of these methods of transmission, the parasites are deposited upon the surface or within the orifices of the body, in wounds, in drinking-water or upon food. In certain foods especially milk and meat, bacteria find an excellent culture medium in which they greatly multiply, and in some instances may also increase in virulence. Thus, extensive infection may result from a single milk route. Not only may the small vegetable microorganism thus be carried, but also larger

particles, including certain *animal parasites* and their ova.

Taenia cucumerina, a tapeworm commonly found in the dog, but occasionally in man, undergoes a larval stage in fleas and dog-lice, and these insects, when swallowed by a warm-blooded animal, have caused tapeworm infection. Various forms of tapeworm, chiefly those found in the lower animals, have been shown to undergo an intermediate stage in beetles, flies, caterpillars, butterflies, as well as in certain worms and crustacea. It has also been shown that common flies and other insects may ingest the eggs of various worms, parasitic to man, and may deposit them later in their dejecta, as has been demonstrated by Grassi in the case of the pin-worm (*Oxyuris vermicularis*), porkworm (*Taenia solium*), and whip-worm (*Trichocephalus dispar*), and by Stiles in regard to the common round-worm (*Ascaris lumbricoides*).

Allen J. Smith has recently found in the intestines of cockroaches an ameba closely resembling that causing tropical dysentery.

Dewevre found that in 50 per cent. of children experimented upon, *impetigo* could be carried from the affected to the well, by the simple transference of *lice* (pediculi). In one instance, lice were taken from a well child and placed upon a child with the disease, and after twenty minutes were replaced, with the result that the healthy child acquired the affection.

Celli, Nuttall, and others have shown that the microorganisms of *anthrax*, *cholera*, *typhoid fever* and *tuberculosis* may be carried by flies, fleas and other insects, and may still retain their virulence after passing through the insect's intestine. These observations have a special importance in connection with typhoid fever and cholera.

The experiments of Simmond, Neffleman and Macrae show that flies are able to infect milk with the *spirillum of cholera*, for at least one-and-a-half or two hours after they have been in contact with contaminated substances. Macrae's experiments were particularly interesting. Exposing boiled milk in different parts of the jail at Gaya, India, he found that on the male side of the jail the milk became infected by the cholera microorganism, while similar infection was not found upon the female side. These two departments of the jail were separated by a high wall, and cases of cholera existed on the male side only. The jail swarmed with flies. Buchanan describes a jail epidemic in Burdwan, India, in June, 1896. Outside this prison there were huts where cholera prevailed. At a certain time a strong wind blew numbers of flies from the side where these huts lay into the prison inclosure, where they settled upon the food of a part of the prisoners. Cholera appeared in the jail but only affected those prisoners fed nearest the huts.

The study of a large number of cases of *typhoid fever* in the American camps during the Spanish-American War indicates that flies, which were shown to be constantly flying from improv-

erly guarded latrines to the mess tents, were the chief cause of the widespread infection.

Flies caught in rooms inhabited by patients suffering with *tuberculosis* have been repeatedly found to contain in their intestines and excreta tubercle bacilli of sufficient virulence to cause the death of *guinea-pigs*.

Flies have also been credited with the dissemination of leprosy, but concerning a disease of such insidious onset the proof is difficult.

Certain forms of *purulent conjunctivitis*—*Egyptian ophthalmia* and "*Florida sore-eye*"—bear evidence of being disseminated by flies, which are attracted by the discharges, and may readily carry the infectious material on their proboscides and legs, from diseased to healthy eyes. The *Hippelates flies*, occurring in enormous numbers in the southern part of the United States, are especially apt to dart into wounds, the eyes, the nose, and other moist parts of the body, and probably are important carriers of contagion.

Infection of wounds may occur through the agency of flies that fall into the solutions or alight upon the instruments used, or upon the wound itself. Although it is difficult, clinically, to demonstrate infection by this means, there is abundant experimental evidence to show that it is not only possible, but oftentimes probable. Infectious organisms deposited upon broken surfaces of the body may later gain entrance through abrasions produced by *scratching*. In this way infections may result through the skin, although the person has not been bitten by an insect.

Howard has undertaken a comprehensive work to determine not only the importance of flies as disseminators of typhoid fever, but also to determine precisely the *species of flies* that feed or oviposit upon exposed human feces, and how many of these are attracted to human habitations. During 1899 and 1900, 23,087 flies were caught in and around human dwellings, examined and classified. Of these, 98.8 per cent. were the common *Musca domestica*; others of importance were the *stable-fly* (*Muscina stabulans*), the *little house-fly* (*Homalomyia canicularis*), and the *fruit-fly* (*Drosophila ampelophila*)—all of which were found breeding in human feces. While the common house-fly prefers horse manure as a breeding-place, yet in army camps and country places where the box privy nuisance is still tolerated, they will breed in human excrement in vast numbers, and may be attracted to it without oviposition.

The Inoculation of Pathogenic Organisms Through the Bites of Insects.

From the conclusive evidence that flies and other insects may take into their proboscides living parasites when feeding upon infectious material, it would seem possible that such insects as *biting flies* (*Stomoxys*, *Tabanus*, *Hemotopota Simulium*), *fleas*, *bedbugs*, *chigoes*, as well as *spiders* (arachnids) and *centipedes* (myriapods), could, under suitable conditions, produce infec-

tion. As yet there is little indubitable experimental proof, but many clinical instances have been recorded in which infection seemed to originate from the insect's bite. Anthrax has repeatedly been attributed to the bites of flies that have previously feasted on the discharges or carcasses of animals affected with splenic fever. Erysipelatous, phagadenic, and carbuncular inflammations have also been ascribed to the bites of insects.

Joly says that it is a common belief in Guadeloupe that glanders is transmitted by flies. Most of the facts submitted to prove infection from the bites of insects are suggestive rather than positive, and although the proboscis of the insect may teem with bacteria, the current during the blood-sucking would tend to carry the parasite away from the body of the victim. The physiologic mechanism of the insect's bite, however, is not so fully understood as to render this conclusion absolute. Many biting insects discharge secretions into wounds and it would seem possible that by this means certain parasites might be washed from the proboscis into the puncture. This is apparently proved in the case of tsetse-fly disease, although Nuttall, in 1898, permitted bedbugs to bite animals dead or dying of anthrax, plague, chicken cholera, and mouse septicemia, and then transferred them to healthy animals that were repeatedly bitten, but in no instance became infected. Bedbugs were also permitted to bite mice through areas of skin on which the spleen from the body of a mouse that had died of anthrax had been rubbed, yet no infection followed. Similar negative results were also obtained from a few experiments made with fleas. In view of these experiments, Nuttall concludes that infection from the bite of a bug does not occur, or at least is exceptional. That infection might occur were the bug crushed while in the process of biting, or the bitten area afterward scratched, is admitted. Joly, in 1898, working with anthrax, obtained similar negative results.

It should be remembered, however, that these experiments are too limited to prove a general negative. They indicate that the ability of biting insects to inoculate disease is not an universal one, but is at most restricted to certain species, and depends perhaps, also, upon the association of special, favoring conditions, such as a particular length of time after contamination and other environmental factors.

In proof of this, observations on the tsetse-fly disease (Nagana) may be cited. Nagana is due to a flagellate microorganism and is endemic, in certain wild animals, especially Ungulata, of Africa. The experiments of Bruce and others prove conclusively that the tsetse-fly, comprising several species of *Glossina*, carries the parasite from infected wild animals and in biting inoculates such domestic animals as the horse, mule, donkey and cat. Although the bites are painful, they are not infectious to man. It seems that other flies are unable to convey this disease, and for successful inoculation it is also essential that the fly should bite the healthy animal soon after

having been on the diseased animal. If the *glossinæ* are kept hungry for a few days, they then fail to convey the disease. This indicates that the fly acts simply as a carrier and inoculator, and is not an intermediate host of the parasite. The disease may also be conveyed by direct inoculation of blood from the diseased animal. *Trypanosoma* infection of rats seems to be consummated by the inoculation of the parasites by the bites of contaminated fleas.

It will be observed that these, and other parasites to be later mentioned, that are positively known to be inoculated by the bites of insects, are animal parasites and not bacteria; yet the possibility of inoculation of the vegetable parasites in this manner should be considered, and, until it is positively disproved, precautionary measures should be taken to prevent its consummation.

Insects as Intermediate Hosts.

It has been demonstrated beyond cavil that certain varieties of *mosquitoes* act as intermediate hosts for *malaria*, *yellow fever* and *filariasis*. In each of these diseases the parasite is removed with the blood of an infected person and undergoes a certain developmental cycle in the body of the mosquito, after which the parasite may be inoculated into the body of the next susceptible person bitten. The evidence in proof of this mode of conveyance by the mosquito is conclusive. The experiments, particularly in relation with yellow fever and malaria are striking. Grassi protected during the malarious season, 10 houses containing railway employees and their families—numbering in all 104 persons, including 33 children under ten years of age—in a very malarious district on a plain of Cappaceo, Italy. The protection consisted merely in adopting precautions against mosquito bites, by properly screening houses, into which the occupants were directed to retire before sundown. Despite the prevalence of malaria in the neighborhood, only 3 of the 104 persons were infected. During the malarious season of 1900, Drs. Sambon and Low, of the London School of Tropical Medicine, lived in a very paludous part of the Roman Campagna, in a specially constructed and carefully screened house. No quinine was taken, and no health precautions observed beyond retiring within the house from sundown until daylight the following morning. Despite the general prevalence of the fever in the surrounding country, and although the experimenters exposed themselves to the night air and to the wet and cold of the rainy season, their health remained perfect. About the same time mosquitoes that had bitten a patient suffering with malaria in Rome were sent to Liverpool, and permitted to bite a son of Dr. Manson, who had never been in a malarious country since he was a child. These mosquito bites were promptly followed by a well-marked infection of the double tertian type. Many other experiments have likewise indicated the transmission of malaria by *Culicidæ*, and it remains to be demonstrated that malaria is contracted in any

other way—except experimentally, when blood is transferred directly from the sick to the well.

The recent experiments of Drs. Reed, Carroll, Agramonte and Lazear in relation to *yellow fever* are, if anything, more striking. These observers repeatedly conveyed the infection of yellow fever from the ill to the well through the bites of certain mosquitoes. The sacrifice of Dr. Lazear's life marks the devotion and zeal of these experimenters. It was found that twelve days were required from the time that the mosquito bit the infected person before its bite could transmit the disease, and that after this period it maintained its ability to infect the well for at least fifty-nine days. To carry out the experiments more thoroughly, two buildings were erected. One, known as the infected mosquito building, was divided into two rooms by a wire screen partition extending from the floor to the ceiling. The door and windows were screened, but so placed as to give thorough ventilation. All articles introduced within the building were previously carefully disinfected by steam. In the large room of this building mosquitos that had previously been contaminated by biting yellow fever patients were placed, and persons who were not immune to yellow fever entered both rooms. In the room free from mosquitos the experimenters remained in perfect health, while six out of seven persons bitten by infected mosquitoes promptly contracted yellow fever. The second building erected was a small frame house with a capacity of 2,800 cubic feet. It was tightly sealed and battened, provided with small windows to prevent thorough ventilation, and with wooden shutters to avoid the disinfecting action of sunlight. The house was carefully screened to prevent the entrance of mosquitos. The average temperature in the house was 76.2° F., and care was taken to keep the atmosphere humid. On November 30, 1900, three large boxes filled with sheets, pillow cases, and blankets that had been used on the bodies and beds of patients suffering from yellow fever, and were soiled with their discharges, were placed in the room. This soiled linen was not disinfected and was used in preparing the beds upon which nonimmune persons slept. Later a fourth box of clothing and bedding was added, this being so vilely soiled with the bloody stools of a fatal case of yellow fever that for a time it was difficult to remain in the house after the box had been opened. Two nonimmunes occupied the beds from December 21st to January 10, 1901, every night wearing the garments worn by yellow fever patients during their entire attacks, and making exclusive use of their much-soiled bed linen. Each night this linen was shaken to diffuse adhering particles in the air and each morning packed away in the cases. At the end of twenty-one nights, two other nonimmune persons occupied the same beds for twenty days more. In all, seven nonimmune persons were exposed in this building during the period of sixty-three days, yet all remained in perfect health. In these experiments the greatest care was taken to avoid anything that would militate against the

accuracy of the results, and the evidence is conclusive that a mosquito (*Stegomyia fasciata*) serves as the intermediate host for the parasite of yellow fever. The clinical application of the results of these experiments is corroborative. Thus, yellow fever was endemic in Havana and persisted despite the approved measures of sanitation practiced after the occupation by United States troops. After the adoption of measures to prevent the conveyance of infection by *Stegomyia*, the disease was eradicated for the first time in the known history of the city. Considered in conjunction with the mosquito's ability to live and retain the virus for several months, to hibernate during cold weather, and to be transmitted in various vehicles and on shipboard, many features relating to the development of epidemics of yellow fever are for the first time satisfactorily explained.

(To be continued.)

BOOK REVIEWS.

A TEXT-BOOK OF PRACTICAL MEDICINE. By William Gilman Thompson, M.D. Second Edition, Revised and Enlarged. Phila. & N. Y., Lea Bros. & Co., 1903. 1014 pp., 8vo. Price: Cloth, \$5.00; leather, \$6.00; half morocco, \$6.50.

The second edition of this very satisfactory book does not require detailed notice. It has been revised and brought up to date in a very thorough manner. The articles on malaria, dysentery, and yellow fever have been rewritten; so also those dealing with certain of the diseases of the heart and blood. New material has been added to the sections on diseases of the digestive system, serumtherapy, prophylactic inoculations, and immunization. The very practical topic of functional nervous diseases receives increased attention.

That a second edition should be issued in two years from the date of publication, shows a gratifying demand for the work; that so many additions and amplifications should be necessary demonstrates the constant progress which is made in the science and art of internal medicine. The author, as a teacher of experience, is peculiarly qualified for the task which he has so well performed. His style is clear and free from redundancy, and there are fewer evidences of hasty writing than are usually found in the work of a busy physician. The print, paper and binding are, as is to be expected, satisfactory. The book is well worth a place in one's library.

GLENTWORTH R. BUTLER.

OBESITY: THE INDICATIONS FOR REDUCTION CURES. Part 1 of: Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden. Authorized American Edition Transl. under the Direction of Boardman Reed, M.D. New York, E. B. Treat & Co., 1903. 59 pp., 8vo. Price: Cloth, 50 cents.

NEPHRITIS. Part 2 of: Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden. Authorized Amer. Edition, Transl. under the Direction of Boardman Reed, M.D. New York, E. B. Treat & Co. 1903, 112 pp., 8vo. Price: Cloth, \$1.00.

MEMBRANOUS CATARRH OF THE INTESTINES (Colica Mucosa). Part 3 of: Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden. Authorized Amer. Edition, Transl. under the Direction of

Boardman Reed, M.D. New York, E. B. Treat & Co. 1903. 64 pp., 8vo. Price: Cloth, 50 cents.

These three monographs by v. Noorden constitute extremely interesting contributions to the practice of medicine. The author is known as an original and independent writer, with the courage of his convictions. Some of his conclusions are directly opposed to prevailing views and practice, but it must be admitted that his reasoning is cogent, and that his arguments are based upon ample and carefully worked-out clinical and experimental evidence. These treatises should be read by every one who has occasion to deal with the diseases under consideration. Future numbers may be anticipated with pleasure. The make-up of these small volumes is satisfactory, except for the presence of an inexcusable number of minor typographical errors. The major mistake is the transposition of the electrotypes of pp. 60 and 68 in Part 2.

Part 1 deals simply with the indications for and against the employment of a reduction cure in cases of obesity. The technic of the cure is to be considered in a later brochure. The obese are divided into two classes: first, those otherwise healthy; second, those in whom obesity complicates other diseases. The reduction cure is not weakening if really indicated and properly carried out. It is not advisable if senile degenerations have begun. In slight obesity it is best to be content with holding the tendency in check, as, especially in women, hernias, gastropnoxis, nephropnoxis, and biliary colic may result from the loss of abdominal fat. v. Noorden considers it very important that obesity occurring in connection with disease of the heart and vessels should receive treatment, thus relieving the heart from the work of carrying the extra weight of fat. Obesity is further discussed as associated with chronic nephritis, chronic bronchitis, chronic rheumatism, gout, diseases of the nervous system, diabetes mellitus, and pulmonary tuberculosis.

Part 2—the treatment of nephritis—is distinctly revolutionary in some of its statements. The booklet should be read to be appreciated. It is quite probable that many of v. Noorden's dicta regarding nephritis will be accepted in the near future. At all events his therapeutic recommendations may prove very useful alternations to the approved methods in cases which are not doing well. It is hardly fair to present his conclusions without also stating the facts—clinical and experimental—which led to their formulation.

Part 3—concerning the nature and treatment of colica mucosa, most commonly known as membranous enteritis—is the most satisfying contribution upon this interesting subject that has yet appeared. The studies of v. Noorden go to prove that typical colica mucosa occurs almost exclusively in the subjects of chronic constipation, but that there must be, in addition to obstipation, excessive excitability and over-action of the mucus-producing glands of the colon, due to certain nervous influences, and not to inflammation. The cure of the disease requires first a cure of the constipation; subsequently attention is paid to the neurasthenic and hysterical conditions which are almost invariably present. The method of treatment is described in detail, and, considering the usually obstinate character of the disease, the ultimate results are very satisfactory.

GLENTWORTH R. BUTLER.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D. Assisted by H. R. M. Landis, M. D. Vol. 4. December, 1902. Phila. & N. Y., Lea Bros. & Co., 1902. 422 pp., 8vo. Price: Cloth, \$2.50.

The subjects treated in this volume make it one of

special interest to the profession. Dr. Einhorn's section on the treatment of Diseases of the Digestive Tract is of special value to the general practitioner. While Dr. Bloodgood gives an excellent resumé of the recent advances in anesthetics, fractures, dislocations, amputations, surgery of the extremities and orthopedics. The recent discoveries concerning life and vital reactions which have been made by Prof. Loab and attracted such wide-spread interest are fully described by Dr. Brubaker in the section on Physiology. The remaining sections contributed by distinguished writers are up to the standard.

WILLIAM FRANCIS CAMPBELL.

ANATOMY. A Manual for Students and Practitioners. By William H. Rockwell, Jr., M. D., Phila. & N. Y., Lea Bros. & Co., [1903]. 620 pp., 8vo. Price: Cloth, \$2.25; Limp Leather, \$2.75. (Lea's Series of Pocket Text-Books.)

This manual of Anatomy is practically a resumé of the subject in a concise and readily accessible form. Dr. Rockwell has had a long experience in teaching anatomy which specially qualifies him to arrange the matter in such a way that the needs of the student will be best conserved. The text is clear, the language concise, the arrangement logical, the illustrations satisfactory. The student and practitioner will find this volume a handy and reliable guide for the essential facts of Anatomy.

WILLIAM FRANCIS CAMPBELL.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Vol. 2. General Surgery. Edited by John B. Murphy, M.D. November, 1902. Chicago, Year Book Publishers, 1902. 553 pp. 12mo. Price: Cloth, \$2.00. Price of Series (10 Vols.), \$7.50.

The second volume of the series of year books devoted to general surgery is very much larger than that of last year. Dr. Murphy's judicial and analytical mind is especially fitted for reviewing the surgical literature of the year. An endeavor is made by the editor to select the important contributions of surgical literature and to make such editorial comments as the paper warrants. These comments are exceedingly valuable and reflect the profound scholarship for which Dr. Murphy is noted. One cannot get a better idea of the general scope of this work and the motive of the editor than by reading the introduction. In fact we believe that it would amply repay the reader if he got no more from this volume than the wise, judicial and forcible statements contained in the introduction.

It gives us great pleasure to review and recommend this year book.

WILLIAM FRANCIS CAMPBELL.

A TREATISE ON DISEASES OF THE ANUS, RECTUM, AND PELVIC COLON. By James P. Tuttle, A.M., M.D. New York. D. Appleton and Company. 1902.

This volume of nearly a thousand pages bears witness to the increasing interest which is being shown to the subject of diseases of the lower bowel. So extensive have been the studies made in this department of medicine that it has already become well established by general consent as one of the most important of specialties. The number of men who have been engaged in the development of this branch of medicine has been small, but the work which they have accomplished and the large amount of careful observation which they have done and the contributions which have been made to our knowledge of the pathology and treatment of rectal diseases merit the fullest recognition. Because of this and because of the special operations and instruments which have been contrived and the special aptitude requisite for the work, it may very properly be regarded as a special branch of medicine. The in-

creasing interest shown by the general profession and the small amount of attention given to this subject in the medical schools have resulted in the creation of special clinics for teaching and treating rectal diseases.

This book is based upon the author's experiences in conducting such a clinic, in which he has had a large number of cases. These experiences he has embodied in this work, and at the same time he has compared them with the observations of others who have worked in this line.

Most attention has been given to examination, diagnosis, and local treatment. The book is of special value to the general practitioner because of the attention given to non-operative treatment. When, however, the best treatment is operative, the author does not advise any palliative or tentative measures. The operations are all in line with the best surgery, and the technique described shows the wide experience of the author.

The book opens with a chapter on embryology, anatomy and physiology of the parts under consideration. The next chapter deals with malformations of the anus and rectum, and presents a large number of illustrative cases and describes the operations necessary for the relief of these conditions. A most valuable chapter is that on examination and diagnosis. Here the author takes up systematically the historical examination, digital examination, instrumental examination of the rectum, anesthesia in rectal examination, and the examination of the feces.

Following are chapters on catarrhal diseases of the rectum and sigmoid, proctitis and sigmoiditis; chronic colitis, mucous colitis, and membranous colitis; tuberculosis of the anus, rectum, and pelvic colon; venereal diseases of the anus and rectum; non-specific ulcerations; fissure in ano, and irritable ulcer; perineal and perirectal abscess; fistula; stricture of the rectum; constipation, obstipation, and fecal inspection; pruritus ani; hemorrhoids; prolapse of the rectum; benign tumors of the rectum; malignant neoplasms; extirpation of the rectum; colostomy, colotomy, artificial anus; foreign bodies in the rectum and sigmoid flexure; wounds, injuries, and rupture of the rectum; nervous disorders of the rectum; and finally a very valuable chapter on recto-colic alimentation.

This excellent work contains some three hundred and forty illustrations, most of them original, many of them in colors. Some are drawings of dissections made by the author.

Dr. Tuttle is to be congratulated upon this admirable work.

J. P. W.

THERAPEUTICS OF DRY HOT AIR. By Clarence Edward Skinner, M.D., LL.D. New York, A. L. Chatterton & Co., 1902. 200 pp. 8vo.

Treatment by means of hot, dry air finds an enthusiastic advocate in the writer of the book at hand.

The author deals with the physiological side of the subject in a thorough manner, and outlines the technique of treatment, discussing various forms of apparatus and illustrating the method of preparing patients for the application of dry hot air treatment to different parts of the body.

The greater part of the work is taken up with the therapeutic possibilities of this treatment and Dr. Skinner speaks with conviction concerning its merits. Though seemingly somewhat extravagant in some of its claims the book will doubtless stimulate interest in the subject. Dry hot air is not regarded as a panacea but is held to be a valuable and competent agent in the treatment of many diseases, particularly those of rheumatic origin.

THE MATTISON METHOD IN MORPHINISM. A Modern and Humane Treatment of the Morphin Disease. By J. B. Mattison, M.D. New York, E. B. Treat & Co., 1902. 40 pp. 12mo. Price: Cloth, \$1.

The few pages presented by the author are quite comprehensive. The treatment suggested is one well known and practised. Certainly 30 years ago a very similar line was followed in one of the leading institutions of this country if not of the world.

It is with pleasure we note his condemnation of the German method; for that, to say the least, is anything but humane.

The length of time given by the author for reduction and convalescence is none too long. It is a well-established fact that a gradual reduction with plenty of time for a broken down system to regain its tone is the best end to the desired result. We are sorry not to note some well-founded statistics as to prominent cures or to their sequences.

The treatment, in a general way, is told in 32 pages so devoted by the author.

C. F. B. •

DISEASES OF THE SKIN: Their Description, Pathology, Diagnosis, and Treatment with Special Reference to the Skin Eruptions of Children and an Analysis of 1,500 Cases of Skin Disease. By H. Radcliffe Crocker, M.D. (Lond.), F.R.C.P. *Third Edition, Revised and Enlarged.* Philadelphia, P. Blakiston's Son & Co., 1903. Price: Cloth, \$5.

It is a task as easy as pleasurable to review such a book as the above volume, to all intents the word *excellent* might alone be used as expressive enough; and we may as well say now, that it is in our opinion, if not the very best work extant, on the subject it treats of, it is certainly second to no other, and we would congratulate equally the author, and the dermatological world in general on its production. . . . It is written in vigorous English and though direct and not dealing in periphrases and involvement of ideas; gives, apparently without prejudice whatever, the opinions of others on *most* subjects, finally summarizing, so that one is never at a loss in ascertaining the author's personal convictions. Moreover he does not confine himself as do many of the French, and even German writers, to works and authorities of their own respective countries; but by his references shows his catholicity of reading and observation in the greater dermatological world.

His annexed Bibliographical notes on the various special subjects while relatively scanty to those we often find, are invariably of the best, and help without confusing.

To enter a little into detail after the above generalization of this work, it may be said, that its formal arrangement is as usual now-a-days among the first-class treatises. The chapters on Anatomy, semiology, Etiology, etc, etc., while not diffuse are comprehensive, and well worked out, though decidedly briefer than in some other works.

The author's classification in the main is that of Hebra, modified as is usual by personal convictions of propriety of place of individual lesions. The illustrative part consists almost wholly of engravings (which as a rule are good). We would like to say that we consider this an advantage, rather than a defect; it is a sufficiently large tome (over 1,500 pages) as it stands and we believe it should not be further burdened as some others are with photographs, colored lithographs, etc., illustrative of ordinarily *too typical* special cases. The various atlases of the Sydenham Society, the French and American and other plates, those of Fox, Gottheil, etc., etc., which few libraries

at least in any town or center are without, can be obtained, or ocular reference can be had thereon, better, and without much trouble.

As to didactic delineation, methods of treatment, and general description of the individual skin affections, by further comment, we should only have to repeat ourselves. The book is to be commended to student, general practitioner, and expert, alike.

SHERWELL.

THE DISEASES OF INFANCY AND CHILDHOOD. For Use of Students and Practitioners of Medicine. By L. Emmett Holt, M.D., LL.D. Second Edition, Revised and Enlarged. New York, D. Appleton & Co., 1902. xvii, 1,161 pp., 22 pl. 8vo. Price: Cloth, \$6; Half Leather, \$6.50.

The new edition of Dr. Holt's well-known work is not a mere reprint, but a thorough revision. It would be difficult to select any portion of the book for special merit, or criticism. It is well balanced as to the space given to each subject. The author has covered the whole range of pediatrics, and has furnished the practitioner with a valuable work of reference on this important subject. The student will find more here than he has time to read or digest in a superficial survey. The more concise treatises are apt to be recommended to the undergraduate. To the physician who wishes a treatise on diseases of children, in which he can find all that it is essential to know, this book can be recommended. It is printed on good paper, with clear type, and contains a good index which greatly enhances its usefulness.

E. H. B.

A BRIEF NECROPSY AND ITS MEDICO-LEGAL RELATION. Arranged by Gustav Schmitt, M.D., New York and London, Funk & Wagnalls Co., 1902. 186 pp. 16mo. Price: Cloth, \$1.

This little book supplies in a very compact form all the information needed by a physician, lawyer or expert witness in regard to the diagnosis, technique and medico-legal aspects of a post-mortem examination. There are plates of the cerebral centers, of the vessels and of the origins of the cranial nerves at the base of the brain and of the abdominal regions.

After a dozen practical "Hints and Dents" full directions are given for making a post-mortem. Thirty-six pages are devoted to the consideration of suspected poisoning cases. Mortal injuries, abortion asphyxia, infanticide and death from various causes such as electric shock, burns, starvation, and exposure to cold are all dealt with.

The book contains a large amount of valuable information in a very handy form and should be found useful by those engaged in post-mortem work.

THE DISEASES OF INFANCY AND CHILDHOOD: Designed for the Use of Students and Practitioners of Medicine. By Henry Koplik, M.D. Lea Brothers & Co., New York and Philadelphia, 1902. 675 pp., 169 engravings. 30 plates in colors and monochrome. Price: Cloth, \$5.

During the past few years new books on diseases of children have appeared so rapidly that one is at a loss to choose between them. Each has its strong and weak points. This new claimant for a place among the substantial text-books on diseases of children is an endeavor on the part of the author "to spare his readers the labor of deciding between divergent views, and has adhered to his purpose of affording the physicians and students of his own country a practical guide and text-

book." To carry out this purpose the author appears dogmatic as well as concise. At times he seems too dogmatic, and makes statements which are open to question, because of the diversity of teaching of pediatricists. This dogmatism, however, makes the book all the more valuable to the student, who wants the theories well digested and the statements stripped of all doubt. While such a treatment of the subject is not the most scientific, the author has aimed to adhere to his purpose, as stated in the above quotation from his preface, but whether he has always succeeded may be questioned. His classification of diseases does not represent the consensus of teaching by other pediatricists, and is rather disappointing. To cite one example, he has a section entitled Gastro-Intestinal Atrophy which he makes include all forms of atrophy, the etiology of which he states is unknown. He recognizes syphilis as one of the causes, but pure starvation from improper feeding he does not seem to recognize as a cause.

Gastric ulcer and gastritis and chronic gastro-enteritis are not discussed. Scrofulosis is described as a constitutional dyscrasia due to the tubercular bacillus and the pyogenic bacteria, while tuberculosis is a disease caused by the tubercular bacillus. As a whole, the book is concise and practical, and aside from some defects in classification and grammatical construction, can be recommended.

The illustrations are especially good, the type is clear and the general make-up of the book excellent.

DISEASES OF THE SKIN. A Manual for Students and Practitioners. By Alfred Schalek, M.D. Philadelphia and New York, Lea Brothers & Co., 1902. 225 pp. 12mo. Price: Cloth \$1.25.

It is difficult to rate this volume as to its relative value in dermatology.

It is altogether too small for its subject, if it should be taken in the sense of a serious treatise, although some of the diseases and their manifestations etc., are admirably summarized. So far as it goes it is correct, saving a few errors of print due doubtless to imperfect proofreading.

It is doubtless intended more as a quiz book for the classes of which the author is the instructor, and without doubt serves the purpose well—it may be used in this way advantageously by others to refresh their memories for the *mauvais quart d'heure* of examination.

S. S.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Vol. 3. The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C.M., M.D.; Albert H. Andrews, M.D.; T. Melville Hardie, A.M., M.D. December, 1902. Chicago, Year Book Publishers, 1902. 321 pp. 12mo. Price: Cloth, \$1.50. Price of Series (10 vols.), \$7.50.

This little book of 320 pages seems calculated to save a great deal of time to those interested in the subjects of which it treats—how much may be intimated by the statement that in its make-up about 90 journals have been consulted, to which considerably over 400 references have been made. Naturally, to those who use the special journals many of the articles are familiar, and they come a little late, but it is equally true that, when the material is so scattered, some valuable thoughts are sure to be missed, and to glance over good articles a second time is not time wasted for any of us. The book therefore seems well worthy of a place on the specialist's shelf, and it will give the general practitioner an opportunity rather easily to familiarize himself with the drift of current Eye, Ear, Nose and Throat literature.

J. E. SHEPPARD.

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, JUNE, 1903.

No. 6

ORIGINAL ARTICLES.

VENTRAL SUSPENSION AND VENTRAL FIXATION FOR PROLAPSE OF THE BLADDER WITH THE UTERUS.

BY ROBERT L. DICKINSON, M.D.,
New York.

Assistant Professor of Obstetrics, Long Island College Hospital;
Surgeon to Brooklyn Hospital; Fellow of the
American Gynecological Society, Etc.

Read before the Medical Society of the County of Kings.

Summary.—For the worst cases of procidentia where a large portion of the bladder and of the uterus hangs outside of the vulva, plastic operations will not suffice. High attachment to the abdominal wall is required to effect a permanent cure. When the base of the bladder has become elongated, or has slid away from its attachment to the cervix, and cannot be lifted, it should be freed from the cervix, slipped upward and made fast, to prevent a later cystocele. The procedure necessary during child-bearing activity is suspension; after the menopause, fixation to the naked muscle.

This paper deals with the worst cases of prolapse. Pessaries will hold some uteri and the edema will then disappear. Massage has helped a few. Minor degrees of falling with little or no retroversion of the uterus may be curable by repair of a torn cervix, or amputation of an elongated one, together with removal of any slack in the anterior vaginal wall, followed by reconstruction of the torn pelvic floor. Most uteri, however, which are low enough to show the cervix at the vulva on coughing or in the upright posture exhibit a backward-tilted fundus, and an increase in size. Therefore nearly every case of prolapse calls for attachment of the fundus to the rear surface of the abdominal wall. Thus the wedge is prevented from reopening the vulva, by being laid across the gap. The thrust from above comes upon the back of the uterus instead of the front.

Suspension in the child-bearing woman, fixation in the woman past the menopause—this is the rule. In the first class, the fundus is sutured

with ten-day or forty-day gut to the parietal peritoneum alone. The slender ligament that forms will hold the organ in normal anteversion, yet will let go as pregnancy advances. In the second class, the fundus is sewed directly to naked muscle and fascia. A solid union results, which entails abortion or dangerous labor, but gives a permanent hold. Therefore, in the worst cases of prolapse in women who should have no children, and for women past the climacteric, fixation is the satisfactory method. It is necessary to fix, solidly, in women past child-bearing, because, with such, all the lower supports one can build are apt to yield. The scar tissue of the down-hill slope of life stretches with discouraging promptness under steady strain. Thus, unless the bladder be fastened above, the cystocele returns.

Küstner in 1897 reported 90 cases of fixation of the uterus with two failures. He passed silk-worm through the fascia, muscle and peritoneum, and through the uterus, bringing peritoneum to peritoneum.

Removal of the uterus for prolapse has proven a failure. To remove a replaceable and healthy organ because it protrudes through a hernial opening is not good surgery. Moreover, it fails to prevent subsequent return of prolapse of the bladder, only relieving that part of the difficulty which is most easily cured—namely, the uterine displacement. I believe even its inventor, Fritsch, has abandoned it. Shortening of the round ligaments has shown many failures as treatment for prolapse. It can only be permitted for patients very desirous of children (its results in labor being perfect, and therefore better than those following suspension) in young patients with muscular unshrunk pelvic floors, out of which nearly normal structure can be rebuilt by operation.

Of amputation of the cervix we shall hear less and less. The enormous thickening is only edema, so also is the elongation. It is not true hypertrophy. So the microscope says, and so says this experiment, which has been often repeated. A uterus one-third beyond the normal length with its cervix hanging well without, pushed back and held by glycerine tampons for two or three treatments will be found to shrink to nearly normal size. My most striking case showed a shrinkage

in total length of uterine canal from $4\frac{3}{4}$ inches to $2\frac{5}{8}$ inches.

The very long, thin cervix needs some shortening. Taking off half the excessive length always suffices.

Varying Relation of Bladder to Cervix in Prolapse.—It is the behavior and distortion of the bladder in all large protruding masses that constitutes the least studied problem, and the one most difficult of permanent correction. Not only is there a sharp difference of opinion as to the stability of union between bladder and cervix in the normal individual, not only do these fallen bladders offer a variety of findings, but some slide out again after operation while others do not. The variations are worthy of a study to which

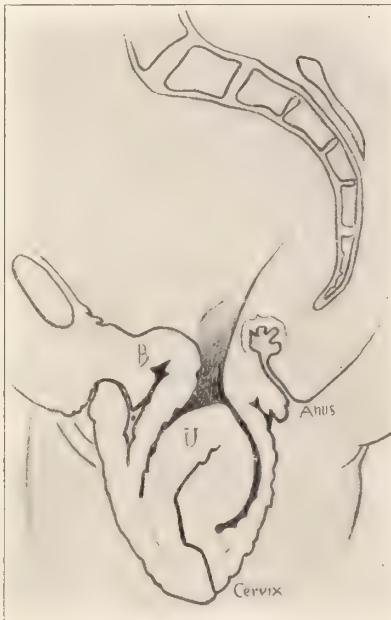


Fig. 1.—Section of complete prolapse of uterus and bladder with little change in anterior vaginal wall or bladder wall. Here no ventro-fixation of the bladder is called for. Saalberg, *Over prolapsus uteri*; Leyden, 1859.

this paper is only an introduction. If one can determine what conditions threaten relapse, the remedy may be devised.

The Elongated Bladder.—The most frequent explanation of the distortion, as shown by the frozen sections and by dissections, is that the lower bladder wall elongates or becomes edematous. Long protrusion brings this about. Even in a muscular woman of thirty-five, a year of uninterrupted protrusion sufficed to produce a development of large size. As thickening often takes place, actual increase in area will vary.

The ureteral openings are outside the patient's body in some instances. The ureter is dragged

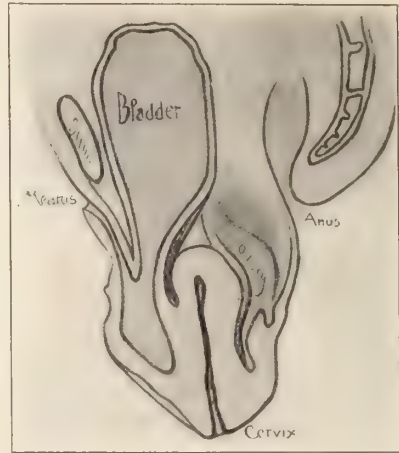


Fig. 2.—Section of prolapsed uterus and bladder with shortened utero-vesical pouch, and anterior vaginal wall nearly doubled in length; to prevent cystocele after bladder fixation, the bladder should be loosened from the uterus. (Barnes *Dis.-Women*, 1878, 628, Fig. 112.)

far downward without appearance of being stretched.

Whether the junction between cervix and bladder was originally defective or not, cannot be told from a study of old cases of prolapse, because edema and hyperplasia have bound the two together in a new relation. In none of my cases of elongated bladder-base was there such play as to permit the bladder to be slid upward past the cervix. This point is of practical importance, for,

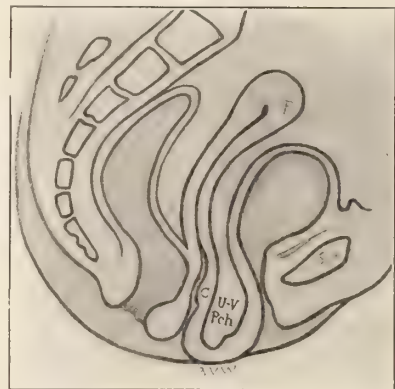


Fig. 3.—Section of elongation of uterus, the fundus remaining in place; separation of cervix and bladder, by hernia (Einstülpung) of the utero-vesical pouch. Here high ventral fixation of uterus and bladder is called for, after anterior colporrhaphy. (A. Martin, *Hand-Atlas d. Geb. u. Gyn.*; 1878, T. 48, Fig. 5.)

unless this sliding can be done, there will be such redundancy in length (as well as in breadth) of the anterior vaginal wall that support from below,

sufficiently effectual to prevent relapse, is impossible. The bladder must be dissected free from the cervix both in the median line, and a certain

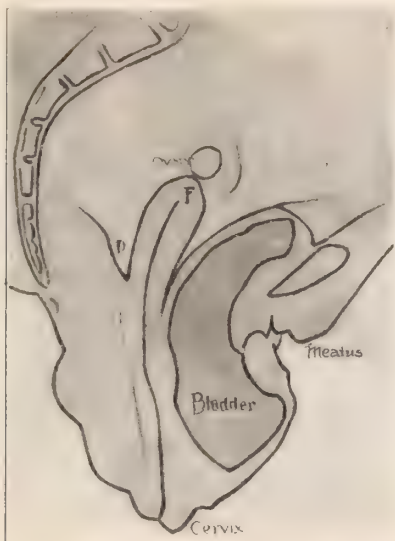


Fig. 4.—Elongation of the uterus, prolapse of the bladder, anterior and posterior vaginal walls: amputation of the cervix, plastic operations on the anterior and posterior walls: separation of bladder and cervix with the double fixation is desirable. (Froirp, Fig. 417.)

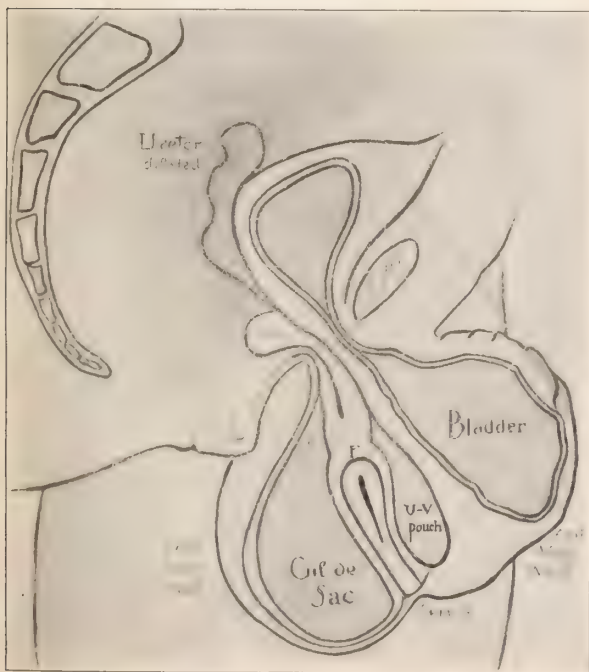


Fig. 5.—Prolapse of bladder and uterus with hernia of cul de sac and utero-vesical pouch, and great elongation of both vaginal walls: after perineal repair and anterior colporrhaphy, both rectum and bladder must be fixed to abdominal wall, the bladder having been freed from the cervix. (Froirp, *Chirurgische Kupfertafeln*, 416; *Martin's Hand-Atlas* 48, 4.

distance to each side of the cervix, and its raw, rear surface slipped upward at least to the fundus. Where the utero-vesical pouch dips low, this is easy. Where a long cervix has to be shortened, it is but a step further.

The bladder cannot be pulled up into place through the abdominal incision in these distorted cases, unless it has been freed from below. The finger finds, in the worst cases, between uterus and bladder, a pouch running to the vulvar opening, even though the empty organ be drawn to its highest possible position.

In the instance here reported (Fig. 9), though the top of the bladder could readily be drawn to

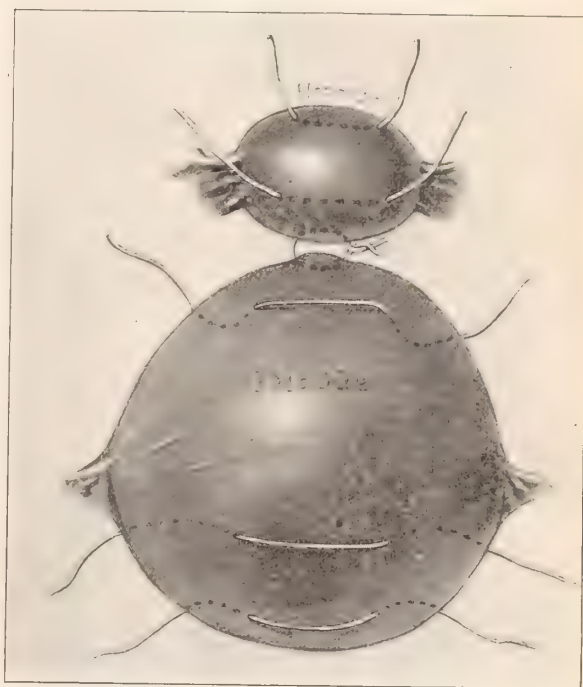


Fig. 6.—The fixation sutures in the fundus of the uterus and bladder, seen from above. Thus the bladder will be infolded.

the cartilage of the eighth rib, the pocket behind it reached over four inches below the pelvic brim.

Behavior of the Utero-vesical Pouch.—In most cases of prolapse the lowest dip of the peritoneum between uterus and bladder retains its relation to the fundus of both organs, and to the pelvic brim. This is shown in the specimen from Froirp (Fig. 4).

In two-thirds of the cases operated on by me the pouch kept the normal relations to the fundus and pelvis.

In some instances the utero-vesical pouch drops with cervix and bladder wall, and it may dip to the lowest portion of the hernia. This was true



Fig. 7.—Ventral fixation of uterus and bladder. The bladder has been freed from the cervix in order that its elongated lower wall (B) may be lifted toward the abdominal wall. The sutures throw the bladder into folds. For fixation, the stitches pass by the peritoneum and enter the muscle of the anterior abdominal wall.

in three of my cases, and is seen in the sections of elongation of uterus (Fig. 3), and prolapse of bladder and uterus, etc. (Fig. 5), and prolapse of bladder (Fig. 9).

Operation to Free and Fix the Prolapsed Bladder.—Whenever the prolapsed anterior vaginal wall is greatly elongated, or a very large portion of the bladder hangs out, the following technique is desirable:

1. Curetting.
2. Repair of cervix if badly torn (but not for



Fig. 8.—In ventral fixation of the bladder the posterior wall cannot be sufficiently drawn upward to prevent the sagging at B, which will produce a cystocele within two years. The figure of eight sutures, over bolsters, is shown in the lower diagram, as well as the folded bladder wall and the sero-muscular apposition.

simple eversion); amputation of cervix if the elongation is great (entire canal 5 inches or over), but not for breadth alone.



Fig. 9.—This bladder, when drawn upward to the highest possible position yet showed a dip of the vesico-uterine pouch running down nearly to the subpubic arch.



Fig. 10.—A hypertrophied bladder drawn through the abdominal incision. Large varicose veins cover it. The fundus could be raised nearly to the ensiform. The two finger incision is pictured too large.

3. Dissection of bladder from cervix, with removal of redundant anterior vaginal wall, in most cases: suture with 10-day gut.

4. Repair of perineum (and of posterior vaginal wall in case of rectocele).

5. Abdominal incision beneath navel; examination of prevesical and utero-vesical pouches; and either

(a) Suspension of bladder and uterus to parietal peritoneum with 40-day gut (in women still menstruating); or,

(b) Fixation of bladder and uterus directly to naked muscle and fascia with silkworm sutures over bolsters (in patients past the menopause).

The third step is necessary in this particular class of troublesome cases because it is the only means whereby the bladder can be sufficiently elevated to prevent subsequent cystocele, so long is the anterior vaginal wall. Tissue may be removed, both longitudinally in the median line and also near the cervix in the anterior fornix, and the upper edge of the trimmed vagina may be hitched to the front of the body of the uterus as is done in vaginal fixation of the uterus, thus laying a transverse fold in the bladder wall. But while an ordinary oval anterior colpography is of undoubted value, time is saved by omitting denudation or suturing of the vaginal wall near the cervix. The end is accomplished after the abdomen is opened, by the fixation sutures, which bring the raw rear bladder wall into contact with the front aspect of the uterus.

The abdomen is incised, not near the symphysis but below the navel, or half way between the two, and the peritoneum is opened for two fingers. Bladder and uterus are drawn up. The utero-vesical pouch is palpated if it has not been previously opened, in order to determine its depth, for the main difficulty lies in lifting this portion of the bladder high enough. The stitches are placed in the bladder in such fashion as to pull the slack of anterior, lateral and posterior walls well up to the wound. The fundus of the bladder becomes inverted.

The after-history of the patients is very satisfactory. The bladder never resents sutures thus placed, and empties itself spontaneously. No irritability or evidences of traction ever develop.

In the choice of procedure to relieve prolapse, it goes without saying that the condition of the individual decides. The healthy young woman who must work hard and presents a considerable procidentia demands full surgical relief. Among old women are two classes, the hale and the frail. The active, wiry woman whose ancestors have all lived long, and who has a large prolapse, thanks the surgeon for many happy unburdened years. But the elderly patient with lowered resistance

should be warned away from the risk. These are they of the sluggish kidney, the hard artery, the flabby fat. The woman of wealth may spend much time on her couch or on the gynecologist's table, rather than hazard operation, and the minor degrees of displacement are responsive to lesser measures, or made comfortable by well adjusted support.

THE MEDICAL WITNESS.*

BY ARTHUR CONKLIN BRUSH, M.D.,

Neurologist to the Kings County, Brooklyn Eye and Ear, Williamsburg Hospitals, St. Giles Home, Bushwick, and East Brooklyn Dispensary.

One of the duties that occur to nearly every physician as a result of the practice of his profession, is the necessity of appearing as a witness in a court of justice. When we consider the large number of trials which require the consideration of medical evidence, it is apparent how important this subject is. The attendance of the physician on such trials is as a rule distasteful to him; but it is a duty which he cannot honestly avoid, for if he has knowledge of the facts of the case he must, like other witnesses, obey a writ of subpoena.

Like other positions of responsibility, it is governed by certain rules and requires a certain amount of preparation. It is a grave fault of our medical education, that it makes so little attempt to fit the physician for this important duty.

Physicians, from the want of certainty in medical science, do not, as a rule, make good witnesses, as it is hard for them to apply the rule of reasonable certainty which the law requires; but the only real disasters on the witness-stand occur to those physicians who are ignorant, who try to distort facts, or those who have not properly prepared themselves.

One of the essentials of a good witness is that he should be clear, logical, and concise, otherwise the facts upon which he is uncertain may be brought out in the cross-examination and throw discredit upon his testimony. As but few men can carry all the facts of a case in their minds for any length of time, a record of the case should be kept and no point omitted, for no one can tell how important any detail of the case may become when the theory of the defense is developed, and especially should the physician keep clearly in his mind those objective symptoms which cannot be simulated. Memoranda may be used on the witness-stand to refresh the recollection; but the witness must state that he made them either at the

*Read at a meeting of the Medical Society of the County of Kings, March 17, 1903.

time of the examination or shortly afterwards. (*Ocean Nat. Bank v. Carlye*, 9 Hun. 239). One of the important essentials of the medical examination is that it should be thorough, for disaster often happens when some important point has been overlooked and is brought out by the opposing witnesses, for in negligence suits the conditions alleged to be due to the injury, may be due also to other existing physical conditions. What the physician should ascertain is, what is the exact physical or mental condition of the patient, and what is the probable cause. He should constantly be on his guard against fraud and exaggeration. Simulation is not common, but exaggeration is often found. The latter is often unconscious, due to the fixation of attention upon the symptoms, and of itself forms a symptom of the traumatic as of other forms of hysteria. It is in the cases where disease of the nervous system or insanity is claimed, that the allegation of fraud is most often made, especially in negligence cases. The reason for this is, that degenerative nervous and mental diseases develop slowly so that a considerable time elapses before they can be recognized; and that these may be occasioned by injuries that at the time produced but little more harm than shock or concussion. Fortunately but few patients are sufficiently acquainted with medicine to successfully counterfeit any disease for the reason that they must simulate all the symptoms not only at one time but all the time; and as a rule these maligners have all their symptoms developed to the highest degree, a condition practically unknown in real disease. It is a good rule to make the patient believe that he is being examined for one thing when in reality he is being examined for another. The physician should keep in mind, however, that genuine invalids often make contradictory statements.

Assuming now that the physician has acquired as complete a knowledge of the patient as possible, it now becomes his duty to put that knowledge in such shape as will render it of service to the Court and jury. He must remember that he is talking to laymen, and must speak in a language that they can understand, and a technical term should never be used unless it is at once explained. My own practice is to prepare a history of the case in the form of the hypothetical question, and a brief of the case containing the opinions of the latest writers on its different points. This is of value in substantiating my statements, and in preventing mis-quotations by opposing counsel, and in the cross-examination of opposing medical witnesses. Of course this requires that

the books quoted should be in court, as they alone can be used for such purpose.

Before the trial the physician should go over the medical part of the case with the counsel, otherwise it may and often does happen that the latter will fail to bring out important points in the examination of his own and opposing witnesses.

When the physician takes the stand he should have the idea clearly in his mind, that he is there to aid the Court and jury in determining the truth of the facts, and not as an assistant counsel to plead either side of the case.

He should preserve a calm and dignified demeanor on the stand and impress the jury that he is there as a man of science to enlighten them on technical facts. A prejudiced or combative witness as a rule carries but little weight with a jury. A witness must first tell his own story and answer the questions of the counsel by whom he is called on the direct examination. After this it becomes the duty of the opposing counsel to try and break down the force of his evidence by what is known as cross-examination. Two methods are employed by counsel for this purpose. One is to attack, anger, and confuse the witness; and the other is to assume a friendly attitude, lull the witness into a false sense of security, and lead him into a position in which he will have to contradict himself. The latter attitude is the most difficult for the witness to contend against, but fortunately it is the most difficult for counsel to assume. The witness should carefully consider the force of each question asked, that is its exact meaning and the effect which the answer produces. A good cross-examiner has a logical train of thought in his mind leading up to some assumption, and it is not always the immediate effect of the answer which he desires but rather its effect at some later period in the examination. Answer each question fully but do not say more than the answer requires. The best answers are as a rule yes and no. If it is necessary to qualify, do so before you answer affirmatively or negatively, for otherwise the qualification will be stricken out by the Court. If you cannot answer the question in the form in which it is put, state so, and make the counsel frame it in a manner in which you can. In answering involved questions, either answer each proposition separately, or if you answer it as a whole, be sure that you have not contradicted yourself. The law which governs medical evidence (*Civil Code*, Sec. 834-836) is that a physician is prohibited even upon the witness stand from disclosing any facts obtained

by him in the exercise of his professional art, without the consent of the patient, or of his heirs if deceased, or of his guardian if a minor or incompetent. This is governed by the rule that if the mental or the physical condition is disclosed upon the witness stand that the opposing side may then summon medical witnesses who have knowledge of the facts to oppose it.

The medical attendant is allowed to testify both to the objective symptoms and also to the subjective, "for it is competent to prove by the attending physician, that the plaintiff complained of pain or other symptoms if made for the purpose of treatment" (*Matterson v. R. R. Co.*, 35 N. Y., 487; *Roche v. B. C. & N. R. Co.*, 105, N. Y., 294).

The expert must confine himself to the facts which he obtains through the evidence of his senses, and he may describe the tests he employed and the results obtained. "It is, however, competent to prove by any witness, that a person manifested pain by groaning, moaning, or by outcries as screams or similar exclamations: as these are the natural language of pain in all men and all animals as well." (*Hagenlocher v. C. I. B. R. Co.*, 99, N. Y., 136.; *Roche v. B. C. N. R. Co.*, 105 N. Y., 294).

In testifying as to the various symptoms, the medical witness should state at the same time just what they indicate, for otherwise the jury will fail to grasp their importance.

When not on the witness stand, the physician should not sit near the counsel and should hold as little communication as possible with him in court. Otherwise it may appear to the jury that the physician is acting as an assistant counsel, and his evidence will lose much of its weight with them. Counsel often request physicians to sit by them and aid in the examination of opposing witnesses; this is often necessary, but beyond this the physician should appear to take as little active interest in the trial as possible.

In negligence or damage suits the questions at issue are, is the plaintiff suffering or has he suffered from any physical or mental disease? Is a certain proved injury a competent cause? Is his present condition a natural and ordinary result? Beyond a reasonable certainty are his injuries permanent or not?

It will be seen that as to the etiology, that unless the physician actually saw the injury inflicted, as most diseases may result from more than one cause, he can have no real knowledge beyond that the injury is a competent cause. The physician must not be influenced by the fact that

the plaintiff had a predisposition to the condition alleged to be due to the injury, or that the condition existed in a milder form previous to the tort. The rule of law being "that the existence of a predisposition does not excuse the defendant, as such disease might never have occurred had it not been for the injury" (*Stewart v. City of Ripon*, 38 Wis. 584), and that "the disease might never have developed to its present extent had it not been for the injury" (*L. N. A. R. R. v. Snyder*, 117, Ind. 435). But if any casual or unexpected cause intervene, then the defendant is not liable (*Godkin*). Neither is the defendant excused from the results arising from malpractice on the part of the plaintiff's physician. It has been held "that a person who is injured through the act of another is required to act in good faith for his cure, but he is not responsible for any error of a physician in the treatment of the injury, nor will such error shield the party through whose fault the injury was occasioned" (*Lyons v. E. Ry. Co.*, 57 N. Y., 489; *Sauter v. N. Y. C. R. R. Co.*, 66 N. Y., 50; *Hope v. Troy Elec. Ry. Co.*, 40 Hun., 438). In testifying as to the permanency of the conditions found in the plaintiff, the law does not require him to state beyond a reasonable certainty. The Court holding "that medicine is far from being an exact science. At its best its diagnosis is little better than a guess, enlightened by experience. The chances of recovery in a given case are more or less affected by unknown causes and unexpected contingencies, and the wisest physician can do no more than form an opinion based upon a reasonable probability" (*Griswold v. N. Y. C. R. R. Co.*, 115 N. Y., 61; *Alberti v. N. Y. C. R. R. Co.*, 118 N. Y., 77).

Contracts, deeds, mortgages, and wills are frequently made the subject of judicial consideration, through the effort to have them declared void on the grounds that one of the parties to them was through insanity, old age, enfeebled mental condition, or intoxication, was legally incapable of performing such acts. In these cases the testimony of the attending physician is of peculiar value, as his professional knowledge enables him to observe facts in a manner impossible to a lay witness.

The rule of law which governs competency in regard to contracts in this State is "that a person who has been judicially declared to be incompetent and for whom a committee has been appointed is incapable of entering into any contract and all such contracts made while in that condition are absolutely void" (*Carter v. Beckwith*, 128 N. Y., 312, 316); but where this has not been done such

instruments are not void but voidable. It must then be shown to void such instruments, that they were the direct result of the insanity as "a contract is valid if made by a person who had mental capacity to have a reasonable comprehension of his act, but prudence and discretion are not required" (*Shakespear v. Markham*, 72 N. Y., 400). Contracts made by the insane during a lucid interval are legal, "if it is shown beyond a doubt, that the insane person acted with sufficient memory, perception, and judgment, and hallucinations do not void a contract unless they exist with reference to the subject of it" (*Hughs v. Jones*, 116 N. Y., 67). The rule of law governing competency to enter into marriage contracts is the same as that governing other contracts: and the "violation of such contracts by an insane husband or wife does not furnish grounds for divorce unless the guilty party was incapable of appreciating the nature of the act and its probable consequences" (*Stuckey v. Mathews*, 24 Hun., 461).

In the case of deeds and mortgages "executed by those who are thereafter judicially declared incompetent, although made within the period during which the findings declare them incompetent, are not absolutely void. The findings are presumptive, not conclusive, and evidence of want of capacity may be overcome by satisfactory evidence of sanity" (*Hughs v. Jones*, 116 N. Y., 67, 73). Weakness of mind does not necessarily invalidate a deed, "nor is it a question whether the grantor of a deed of gift was sane or insane at the time of the execution of the said deed, but whether he had sufficient mental capacity to comprehend the nature and quality of his act, the nature and extent of his property, and the claims of the grantee on his bounty" (*White v. Davis*, 17 N. Y., 548).

Thus it appears that in law that to invalidate a deed on the grounds of incompetency "it must appear that the person executing it was absolutely unable to comprehend or understand the nature of the transaction" (*Van Deuser v. Sweet*, 51 N. Y., 378). A habitual drunkard is competent to execute a deed "unless it can be shown, that at the time of its execution, that his reason was dethroned by intoxication" (*Van Wyck v. Brasher*, 81 N. Y., 260), but "if undue advantage was taken of the mortgagor on account of intoxication, or if the intoxication was caused by the mortgagee, or if he knew of it at the time of the execution, then the deed is invalid. Any instrument executed by a party in such a state of intoxication as to be incapable of consenting or con-

tracting is invalid" (Page v. Kreky, 137 N. Y., 307).

"A will is valid so long as the testator had at the time of the signing of the will, no matter what his mental or physical condition may have been, sufficient capacity to comprehend the nature of the act he is performing, the nature and extent of his property, the relationship he holds to those who have claims upon him, and makes a rational selection among them."

"Unreasonable or unnatural provisions do not invalidate a will unless they establish a mental defect" (*Matter v. Budlong*, 126 N. Y., 423), but wills made in the delirium of fever or where the act was governed by a delusion or hallucination are voidable. Religious beliefs do not invalidate a will, but a belief in spiritualism affecting the subject matter does. Intoxication alone is not sufficient grounds to invalidate a will "unless it can be shown that the person was so intoxicated during the particular act, as to be legally disqualified from giving effect to it" (*Peck v. Cary*, 27 N. Y., 9), and it is also held "that a habitual drunkard in charge of a committee is competent to make a will" (*Lewis v. Jones*, 50 Barb., 645).

It will be seen then that the questions upon which the medical witness is expected to pass are, was the person whose competency is in question, at the time he performed the contested act, suffering from any bodily or mental infirmity, was this of such a nature as to impair his memory, understanding, and judgment, and assuming all the facts of the case did he possess sufficient intelligence to know the nature and consequence of his act?

Although the law does not attempt to define insanity, it has for obvious reasons, clearly defined the degree of mental incompetency which shall act as an excuse for criminal acts. The general rule is that insanity and complete idiocy excuse for such acts, "That no act done by a person in a state of insanity in respect to such act, can be punished as an offence" (*Freeman v. People*, 4 Den., N. Y., 9), "and that a person cannot be lawfully punished for an act committed by him while in a state of insanity" (*People v. McElvain*, 125 N. Y., 600).

The line which divides responsibility from irresponsibility is found in Sec. 21 of the N. Y. Penal Code, which states "that a person is not excused from criminal liability as an idiot, imbecile, lunatic or insane person, except upon proof that at the time of the alleged criminal act, he was laboring under such a defect of reason, as either not to know the nature and quality of the act he was

doing, or not to know that the act was wrong. The act therefore to excuse must be an insane act and not merely the act of an insane person, and thus mere weakness of intellect, eccentricity, inordinate passions, irritable temper, excitable disposition, belief in spirits, or bodily disease, may not of themselves act as an excuse. This has been clearly defined by the courts that "unless disease is proved to have caused mental unsoundness, it does not affect the question of responsibility. The accused is responsible even though some controlling disease was in truth the acting power within him, which he could not resist, or if he had not sufficient reason to control the passion which prompted the act" (*People v. Carpenter*, 102 N. Y., 250), "neither is incipient insanity a sufficient excuse, if the accused had still ability to form a correct perception of the legal quality of the act and to know that it is wrong" (*People v. Taylor*, 138 N. Y., 398).

In paranoia, partial, or reasoning insanity, the rule as laid down by the courts is "that a partial insanity to excuse for crime, the insanity must refer to the particular act committed and the insane person must have lost consciousness of right or wrong" (*Flanagan v. People*, 52 N. Y., 467), and that "an insane delusion is not a defense unless it would excuse the crime, if the facts about which it existed were true" (*People v. Taylor*, 138 N. Y., 398).

Though recognized by medicine as a distinct form of mental disease, moral or impulsive insanity is not recognized by law, for Sec. 23, N. Y. Penal Code, provides "that a morbid propensity to commit prohibited acts, existing in the mind of a person, who is not shown to have been incapable of knowing the wrongfulness of such acts, forms no defense to a prosecution therefor," or as laid down by the courts that "a criminal act cannot be excused upon the theory of irresistible impulse, where the offender knew that he was doing and had the ability to discover his legal and moral duty in respect to it" (*People v. Coleman*, 1 N. Y., Crim. R., 1), or, "if he had sufficient capacity to know the legal and moral character of the act he was doing, the fact that he alleges that he had not control of his will in respect to it, but that his will was controlled by irresistible impulse is no defense" (*People v. Walworth*, 4 N. Y. Cr. R., 355); or, "if there is a form of insanity, in which the faculties are so disordered and deranged, that a man, though he perceives the moral qualities of his acts, is unable to control them, and is urged by some mysterious pressure to the commission of acts the consequences of which he an-

ticipates but cannot avoid. Whatever medical or scientific authority there may be for this view, it has not been accepted by the Courts of Law" (*Flanagan v. People*, 52 N. Y., 469).

Finally as to responsibility during alcoholic intoxication. This is also clearly defined by statute. Sec. 22, N. Y. Penal Code, provides "that no act committed by a person while in a state of voluntary intoxication shall be deemed less criminal by reason of his having been in such condition; but whenever the actual existence of any particular purpose, motive, or interest, is a necessary element to constitute a particular species or degree of crime, the jury may take into consideration the fact that the accused was intoxicated at the time, in determining the purpose, motive, or intent, with which he committed the act.

It appears then that the only forms of insanity which form a competent defense for a crime are the general ones such as mania, melancholia, epileptic insanity, dementia, idiocy, somnambulism, and delirium of fever, for in these alone may the intelligence be so profoundly affected as to induce a mental state that may excuse for crime, and that alcoholism unless it has produced an acute insanity such as delirium tremens, does not excuse for crime, but it may for intent.

It will be seen then that the questions which the medical witness is called to give an opinion upon are, was the accused suffering from any disease at the time when he committed the prohibited act, and was this of such a nature and degree as to destroy the knowledge of the nature and consequences of the act, and of his knowledge of right and wrong?

In giving an opinion as to the mental condition of a person, there are two important rulings which relate to medical evidence. "That a medical man conversant with the disease of insanity, who has had sufficient previous opportunity by his own observation to become acquainted with the personal habits, conduct, and appearance of the accused: upon authority, I think, he may be asked the general question and give his opinion as to the sanity or insanity of the prisoner. In such cases it may be impossible for him to communicate to the jury every fact and circumstance, and all the details of conduct, habits, and appearance, and the other particulars, upon which he had formed his conclusion as to his difficulty. The facts so acquired, the physician may himself give in evidence at least so far as they can be described" (*People v. Strait*, 148 N. Y., 571). "The testimony of experts is the exception to the general rule which requires that the witness must state facts and not express

opinions. In such cases the opinion of the witness may be based upon facts so exclusively within the domain of scientific or professional knowledge, that their significance or force cannot be perceived by the jury; and it is because that these facts are of such a character, that they cannot be weighed or understood by the jury, that the witness is permitted to give an opinion as to what they do or do not indicate" (People v. Younge, 151 N. Y., 218).

The worst features of medical evidence are the necessary answers made to the hypothetical questions, which assume certain facts to be true, and which the medical witness may know are a distortion of the truth; and yet he must answer the question as it is asked, and thus be made to support a theory in which he does not believe. Counsel also often ask a question, the answer to which only allows a part of the truth to be told in the answer, and thus the real facts of the case are not brought out.

The medical witness is often placed in an embarrassing position by attempting to answer questions which relate to the various special branches of medicine; but if he has not qualified as an expert in these various specialties, he may avoid answering on the grounds that the answer requires special knowledge, which he does not claim.

Finally as to the use of text-books, these cannot be used in evidence beyond the manner which I have indicated: as otherwise it would be putting the author on the witness stand, without allowing a cross-examination.

The discussion following Dr. Brush's paper appeared in the last issue (May number) of the *BROOKLYN MEDICAL JOURNAL*, pp. 229-231.

At the February meeting of the Obstetrical Society of Philadelphia (*Boston Med. and Surg. Journal*, March 19, 1903), Norris sounds a word of warning as to the use of salt solution. He has found in some cases that an excessive amount of salt solution has aggravated the condition of the kidneys, has produced edema of the lungs, and helped to do the very thing one aims to avoid. He places as a limit one quart of salt solution and no more, until free diaphoresis, diuresis or catharsis has occurred. When there is edema of the lungs, it should not be employed at all. He says: "I have seen edema of the lungs aggravated and the patient's serum run out of her mouth as the result of too free use of salt solution. Large amounts of salt solution are of greatest value when *profuse* catharsis from saline purges has occurred."

ECONOMICS OF THE PRACTICE OF MEDICINE.

BY HEBER NELSON HOOPLE, M.D.,
Brooklyn, N. Y.

OF the questions which are most constantly urged to the front place for consideration, none is more peculiarly characteristic of the age and time than that of the economics of social life. The spread of general intelligence quickens the general perception of any injustice that exists in the economic conditions that have held their place without adequate adjustment, provided only the matters in question are clearly stated and arrest the public judgment. Prominent among such questions are the claim for larger percentage of profits by the producer, and the claim of skilled workmen of larger pay for their labor. It is granted by every one without dissent that skilled engineers should have the high wages they receive because they earn them. It is even thought their wages might be higher without overpay. What is true of engineers is equally true of all mechanical handicrafts. There is a technique and experience which these workmen acquire that gives a certain right and justice to their claim of higher wages than those earned by the unskilled hand laborer.

If we inquire into the growth of wages for skilled labor we shall find that in the case of some wage-earners their income has tripled and quadrupled in a few decades. There is scarcely one of them in which it has not doubled. In a word we see that their increase of wages and the shortening of their day's labor to eight hours have in a measure kept pace with their acquisition of skill. Of them, then, it may be truthfully said that while they have been producing wealth for their employers, in many instances very rapidly, as, *e.g.*, in the industry of steel manufacture, yet their own well-being has improved at a ratio not at all disproportionate to their earning capacity as producers. It is not true of them that "the rich are richer and the poor poorer" because of what they do; but, on the other hand, it is true that whilst the rich are richer by virtue of their greater skill, they themselves are richer in a fair and equitable ratio of the same. At least if this is not ideally true, or absolutely true, it is true in a larger degree than is by themselves realized or credited. In so far as it is not realized nor credited, the real truth is missed and injustice is done the rich by the unfair thought of the wage earner.

Unskilled labor is also better paid to-day than in the past, but not in the same proportion as skilled labor, for reasons that will be given later.

Knowing then, that skilled manual labor has been receiving increase of earnings fairly proportionate to its increase of producing capacity, it becomes a proper and pertinent inquiry if a like increase in earnings has grown with increase in skill in the learned professions. For our purpose it is enough to pursue this inquiry only so far as concerns the practice of physicians.

It will be the endeavor of the writer of this paper to elaborate the following proposition:

That while increase in the effectiveness of skilled manual labor has been accompanied by increase in wage-value of the same, similar increase in skill and equipment of physicians has been unaccompanied by a like increase in their fees, except in rural practice.

First, because of the existence of certain fundamental economic evils in the present conduct of hospitals and dispensaries to which the medical profession as a whole is giving a mistaken and suicidal consent:

Second, because underpaid employees avail themselves of these very economic evils to get for nothing, or almost nothing that which their employers ought to furnish them the higher wages to pay for;

Third, because degraded foreigners are permitted to segregate and colonize in our cities and perpetuate their degradation there by means of low wages;

Fourth, because common humanity impels physicians living near these colonies to serve them on their low-wage plane.

And that the greatest available force for the remedy of the wrong to this elemental portion of the community lies in unanimity of aim and effort on the part of the profession in its organized capacity to recover lost ground and reinstate itself in the enjoyment of its right and share in the general betterment.

A candid survey of the facts will convince us that the earnings of physicians have not kept pace with the increase of skill required of them and the greater demands made upon them in other ways. Several factors enter into the estimate. They are not capable of exact measurement but they admit of such fairness of estimate as is satisfying and conclusive.

In cities the rate of charges made by physicians when they commenced practice twenty-five years or more ago, to which they have adhered with but slight variation to the present time, is the rate of charge that obtains to-day among the great majority of physicians. For this great majority not only has there been no increase of fees, but

there has actually crept in a tendency in some quarters to what has been most forcibly termed a "cut-throat rate"—an actual retrograde movement in the matter of fees for services. I am bound to say that this tendency seems to be limited for the most part to the poorer sections of urban life, chiefly in the foreign colonies, and does not obtain at all generally in rural practice. For the most part in rural practice increase of fees has been secured, so that the present rate of charge in the country is about double what it was twenty-five years ago. This fact in regard to rural practice is one that more nearly harmonizes with the economics that influence incomes in the trades and skilled labors. Why has not a like advance been made in urban fees? The explanation is not hard to find. Several factors enter into it and are in varying proportions the causes of the inequality.

First, in the city alone have we the thriving eleemosynary institutions—hospitals and dispensaries. There is no question about the *boon* of hospitals, there is equally no question about the *bane* of dispensaries. But hospitals cannot ride to safe harbor on the waves of humane considerations, increased facilities for skilled attention and the need for material for clinical study, without encountering the adverse waves of unpaid services on the part of physicians and consequent deterioration of such services, or their utter neglect or abuse because unpaid. The hospitals are not an unmixed good; they are easily capable of betterment when at their best. They are being bettered but not at a rate proportionate to the injustice involved to the very physicians whose service makes them possible. Here is a recent fact in point: "One of the leading surgeons of Toronto, Ont., recently sought to recover from a hospital patient the moderate fee of \$30, for an operation for appendicitis. The judge decided in favor of the patient, saying 'The public has a right to assume that the treatment is free. These institutions are supported by charity, donations, grants, etc., and therefore the presumption is, at least as far as the public wards are concerned, that all treatment is to be free. The right to pay depending on the ability to pay, is not recognized in law. If patients have to pay, then it is not a public institution. Doctors on the staff cannot recover unless they first notify the patient of the rules and regulations of the hospital.'"

This incident illustrates well my contention that hospitals are not an unmixed good, however humanitarian they are in their inception. Let us analyze the Toronto hospital case which is evidently reported so as to show the judge's attitude in the premises rather than to give all the interesting

facts about it. We may presume that this patient was able to pay else the surgeon would never have thought of asking a fee, nor would the patient have been able to defend suit for recovery. We infer that the surgeon might have recovered had he taken pains to "notify the patient of the rules and regulations of the hospital." In this, then, we find the surgeon derelict in a matter of business foresight—a not uncommon dereliction, exemption from which would often be purchased only at the cost of lay criticism for commercialism. But even with such dereliction, we have a right to assume from an ordinarily constituted, decent person that if he has not great respect and esteem for an able surgeon, whose operation could save his life and whose masterful skill and judgment could determine its necessity to that end, that at least such a person would recognize with gratitude the bare fact that whereas he was ready to die, now his life is saved to him and that the surgeon was the instrument of his salvation. Whatever the *law* may have been, *equity* surely demanded that the surgeon should have had his fee—his pittance it should rather be termed, for it was no adequate fee for such a service.

What shall be said of the institution, if the judge's ruling was just, on the facts in evidence? Nothing less than that a readjustment of its foundation should be demanded. In the first place, if the only service to be rendered within it must be free, then this patient able to pay had no right there and should have been as rigidly excluded as the poor patient was made welcome. Here the institution wronged the surgeon in admitting for treatment one for whom the foundation of the institution did not provide. But, if the foundation of the hospital did provide for his admission when he was able to pay, then it was wrong a second time in that it had left itself powerless in the courts to come to the assistance of its surgeon in the collection of his fee. That the hospital should be capable of accepting without compensation its surgeon's service for all *poor* cases and yet have to confess inability to require a fee of those able to pay, was gross injustice.

What shall be said of the judge? First, he evidently overlooked the arguments just presented as to the foundation of the hospital. Second, he delivered himself of the opinion that "the right to pay depending on the ability to pay is not recognized in law." Equity is greater than law. If judges are barred from equity considerations in such legal decisions then justice will go begging. Again, if equity is barred here, the surgeon should take due warning that the courts take no stock

in equity in such cases and should remember that "the right to pay depending on the ability to pay" is not recognized in law. The surgeon might then assert another principle, perhaps a little combative, but tending to justice and to the better conservation of his own rights, viz.: that (outside the commonwealth of Pennsylvania) the ability to serve (as a physician) does not *compel* such service; and this might have as suitable corollary that, with the ability to serve *well* one able to *pay well*, the physician might honorably be excused service (except in Pennsylvania) till good pay was forthcoming commensurate with the quality of the service. This all on the simple ground of fair play or no play, all sentimental nonsense about the inhumanity of it to the contrary. That cloak already covers too many unpaid doctor's bills.

Third, to this judge's proposition that "if patients have to pay then it is not a public institution," a general denial should be entered. Would the learned judge say that the hospitals all over America which require patients to pay who are able to do so are not *public* institutions? It would be a narrow use of the word "public" that would restrict it to non-pay institutions, and conventional use is against this restriction.

Again, it has been the policy of hospitals to give their staff a monopoly of their advantages, from which it has resulted that skill in surgical technique and excellence in minute clinical study have been cornered by hospital surgeons and physicians. This is wrong in three ways. First, the institutions being public, it is unjust to other physicians to deny them the right to attend their own patients in hospital. Second, it is unjust to the patients whose physicians will not abandon them to the hospital staff and deprive them of the sympathy and helpfulness peculiar to a family physician. Third, it is the source of an evil becoming general. The popularity of hospitals has separated patients from their family physician so that he has lost his grip on them as patients and they have lost their loyalty of attachment to him. It has set in motion a shopping propensity and these patients are becoming rounders. Besides, physicians rightly complain because all surgery goes to hospitals, *i.e.*, to the exclusive staff. The remedy is in breaking up the staff monopoly. Physicians should force this from hospital boards, wherever practicable, and restore to themselves their peculiar value in being the family physician at the same time that they secure the hospital advantages for both.

To use the phrase "bane of dispensaries" may

seem a hasty and unwise form of characterization; but some things considered irreproachable have to be called hard names to compel attention to their real character, much as Alfred Hodder in Jerome's defence employs the term "administrative lie" as an awakening characterization of that which Jerome is supposed to be antagonizing. Undoubtedly, however, no institutions of the nature of these dispensaries could exist in our enlightened communities, receiving the patronage of intelligent and high minded physicians, if they had not some good ground for permanence. But it is the irony of organized charities that they often create as great evils as they are meant to correct. The pauperism admittedly created by dispensaries is surely a worse evil than the suffering that would be entailed if they were but judiciously wiped out, or reduced to proper regulation by elimination of the adverse features now under consideration.

Second, dispensaries are maintained mainly by charitably disposed private citizens with the co-operation of physicians. Rarely are they endowed and maintained by contributions from corporations or trusts, because these are not moved by humane sentiment to make large public benefactions. But if they were, in a spasm of generosity, to assume the support of all hospitals and dispensaries it would be a good paying investment for them on the present basis of management of these institutions, *i.e.*, the service of physicians being unpaid both by the institution and by the attending patients.

In 1902, 15,000 new patients applied for treatment at the Brooklyn Eye and Ear Hospital. Most of them (except those who were thoughtlessly and unwisely directed there by their family physician whom they paid for his services) were probably under-paid employees of the various industries of the city. Let us suppose that these industries furnished 25,000 such applicants to this and the many other hospitals and dispensaries of the city during the year. This would likely be an underestimate, being but one in fifty of the population. In most such cases they would so apply because the privilege was open and because their wages were small. Were the free privilege not available they would demand and receive in due time higher wages with which to pay physicians. Operations, loss of eyes, setting of bones, dressing of wounds, examining of eyes, prescribing of glasses and all kinds of treatment would doubtless average \$20 a year for each of the 25,000, or \$500,000 in all. At 5 per cent. this would represent \$10,000,000

capital furnished by Brooklyn physicians to these employers in one year, which they have withheld from their employees because the physicians of Brooklyn thoughtlessly and tamely permitted it.

Though the motives of generous founders be never so good, they cannot excuse wrongs arising from the misdirection of their well-meant benefactions. Organized charities suffer for lack of the personal interest of the benefactors in the individuals meant to be benefited. Charity by proxy is at best a lame charity. The corrective is personal contact with, and consequent human interest in, the needy subject. This true charity the physician gives continually as a habit of life. No more perfect illustration can be furnished of the fusion into workable system of daily routine of the humane and the purely secular than is furnished by the every-day practice of medicine. Hence, and because this charity already *thus* exists, there is no need of adding to it the organized formal dispensary with its pauperizing tendencies. The legislators of this State have awakened into an appreciation of this fact and have enacted the present dispensary law, a feeble step, but in the right direction. If permitted to continue, the management of such institutions should proceed on the principle of a *quid pro quo*, no service unrewarded. Where treatment is given to the indigent, it should be given by the *institution* not by the *physician*, who in his private practice already does a disproportionate amount of giving. And, above all, the cases thus treated should furnish a clinical material for study, the *sine qua non* of the benefaction.

Third, the extremes of wealth and poverty are found in the cities, so also of refinement and degradation. The extremes should not be so marked in America as in foreign cities. But poor foreigners from the lowest dregs of European countries have poured into our cities bringing with them, of course, their debased standards of living, intelligence, morality, earnings, etc. They segregate, fail to assimilate and reproduce the foreign conditions under our very eyes; and we, tolerant, mistakenly lenient, supinely indifferent, and criminally unpublic-spirited, allow this segregation, this huddling together of filth and indigence, this propagation of vileness and degradation and this acceptance of pittance earnings. Ah! that is the very key of the situation, the cheap labor. Our small-souled employer wants the cheapest hands he can buy and what cares he for the degradation it brings to his city, for the burden it gives his generous humane neighbors, and for the draft it makes upon the sympathies and labors of physi-

cians? These paupers lived on nothing in Europe; they have no notion they can earn more here on which to wipe out their degradation. Ideas come slowly to them. No strenuous, public-spirited community forces employers to pay these brutes enough to emancipate them from their brutality, nor compels them to live apart from their imbruted fellow-countrymen, to learn American conditions of life, nor insist on evolution from degradation into decency as a condition or tolerance. Without such control of foreigners we are consenting to be dragged down into their state of baseness. That particular expression of it which concerns this paper is the degradation in fees for physicians and the continuance of pauperizing free treatment. No objection to these foreigners as such, but they must assimilate, they must rise out of degradation, they must live like we do, they must earn what we earn and must pay what we pay, or go home again. It is easier for people to drift than to stem a tide. In this matter of foreign invasion we are drifting, and as a consequence our cities are becoming slums. The present tenement house law is a strenuous and manful effort to oppose this degradation, and yet so inane and selfish and utterly wanting in public spirit have been some of our moneyed builders that they have tried their best to emasculate at Albany this little step of advancement we have tried to make against the inroads of that foreign invasion.

In spite of this we are drifting still. In nothing is it more evident than in the fees of doctors in the Greenpoint, Williamsburgh and Brownsville sections of this city to-day. Fifty cents in the office and a dollar a visit is high-priced work. This is not to the credit of our city, much less to our own credit, because we must share the blame for it, whether we like it or not. The acceptance by any large numbers of the profession of fees like those is a wholesale consent to, and participation in, the foreign degradation. It is in no sense a charity of the manly kind which physicians are all the time exercising toward the deserving among their poor patients. It is a complete surrender of all manly and professional dignity and backbone. When all skilled industries have shortened a day's work and doubled a day's pay each twenty-five years, what an anomaly in social economics to see the best-beloved of all human activities fall behind the mere industrials! The mere dignity of the profession is no compensation for the reduction in exchange value of the skill employed. This glamor of dignity has thrown a false light on the profession. It is poor stuff to provide against

real needs. Fancied but unreal lucrativeness has increased this false glamor. Great numbers now practise medicine whose present better judgment would drive them out of it into other and better-paid occupations were escape easy. Their first duty physicians owe to their own family. The truth of this does not necessitate the thought that money-making should be the aim of life. It is not, never has been, the controlling aim of physicians. But the same duty is laid upon them to maintain their share of progress in the betterment of social economics that is laid upon other bodies of men. It is altruistic and in line with the best social philosophy. They should maintain a proportion of increase in income, at least equal to that of the industrials; besides, it should be commensurate with increase in skill and effectiveness. It is needed to give them a share in luxuries, without which they grovel and bend to their burden like the "man with the hoe," their effectiveness thereby lessening. Bare subsistence is all they now get; it is clearly inadequate. Their widows and orphans are proverbially left desolate. It is a cruel neglect of the instinct of self preservation. They actually or seemingly love their neighbors better than themselves. After all, can it be that they have failed to progress and deserve no better than they are consenting to accept?

On the contrary, let us reiterate what has been ringing through the current literature, what has found abundant expression in the public press and has been appreciated in becoming modesty from year to year by medical publications, that in no period of the history of medicine has so much progress been made as in the last quarter of the nineteenth century. In no period, by natural and easy consequence, has so much been required of the physician to prepare him for his difficult life work. In no period has he been so capable as now to cope with and relieve "the ills that flesh is heir to." It costs more, takes longer and is more difficult, to acquire masterful skill and experience in practice. If applied mechanics have made enormous strides, medicine has outstripped them. Formerly we had dicta and dogma, now the inductive science of clinical medicine; formerly polypharmacy, now pharmacology and pharmacodynamics; formerly gross pathology, now microscopy and bacteriology; formerly the lecture room, now the laboratory. Formerly it took but two years of six months each; now it takes four of eight each. The preliminary tests were not then required, now they must be met; and each succeeding year emphasizes the value of academic preparation for professional life. Then consider

the availability of medical literature as compared with twenty-five years ago. The whole field of medicine has expanded one hundred fold. In the light of this progress note that the compensation for medical service has barely doubled in rural districts, has remained stationary in urban practice, except in the poorest quarters, where it has retrograded, and only in a small percentage of cases has peculiar adaptability made the return proportionate to the advance.

You will see this anomaly, physicians grown gray in hair, rich in experience and skillful in nice technique and wise in all that concerns the treatment of their patients, who yet continue to give their lives to their patients for the same fee that they received when they began practice forty or fifty years ago. They have kept up with the procession as to fitness for their work. They know all the newest methods, and, in a word, measure up to the full stature of professional requirements in our time. Yet they are so tied by habit, routine and conservatism that they cannot, or will not, keep up with the procession financially. They should be consultants only, whereas they continue to do a beginner's work and for a beginner's fee. This is failing at a vital point, not for themselves alone but for the whole profession.

I have pointed out the need of a change of attitude toward hospitals and dispensaries, the duty of forcing better conditions of life in the poor quarters and the need of physicians recognizing their responsibility for the degradation in consenting to low-priced service. If the beginner's fee is a fair fee then the added experience of five years, *ceteris paribus*, demands a half larger fee for the same physician. Ten years a double fee, fifteen years two and one-half times the initial fee, twenty years a consultant's fee. Our older men should be consultants only. They would have less to do, they would get enough more for what they did to compensate, they would have leisure for improvement and the general practitioner could no longer complain about the specialist, because the general practitioner would then himself be a most important specialist. The specialist's fee is not wrong; it is the general practitioner's fee that is not right.

It needs but general consent to these propositions and unanimous co-operation of the profession to effect gradually and surely the betterment indicated.

Semmelink (*Centralbl. f. Gynäk.*, No. 3, 1903) shows, in an instructive report, how easily a grave complication may be overlooked in pregnancy should the patient decline examination. He was consulted by a woman, aged 42, in the seventh month, who desired him to attend her in confinement. As she had borne twelve children already, and all her labors had been spontaneous except one, she declined examination as unnecessary. This decision was considered unwise by Semmelink, as the patient's legs were edematous, and had been so before the pregnancy. He was furnished with a sample of the urine, and found it free from albumen. His advice to the patient to place herself under her family doctor for the edema was not followed. At term labor pains set in, and as they grew weak Semmelink delivered the child with forceps. It was a healthy male, over eleven pounds in weight, and was reared. The placenta followed about half an hour later. Four days after the confinement the patient was put in the hands of De Mouchy. In a few days the patient complained for the first time of pain during defecation, bloody stools were passed. Then the rectum was explored, and malignant disease detected high up the bowel. There was stricture, and an accumulation of feces above it; it is significant that this complication had neither caused inconvenience nor interfered with the labor. The cancer was quite inoperable, and the patient refused to have colotomy performed. She died within six months. (*British Med. Journal*, February 14, 1903.)

Eccles (*The Lancet*, March 21, 1903) draws attention to the association of appendicitis with pregnancy and parturition as being of the gravest import and by no means uncommon. That a woman who has suffered from an attack of appendicitis and has not had the organ excised runs an enormous risk if she becomes pregnant, is now coming to be a well-recognized fact. He states that it is difficult to judge whether the occurrence of the pregnancy is a factor in the lighting up of the inflammation in the appendix, but it is equally certain that such an inflammatory condition commencing during pregnancy or after parturition has up to the present time been attended with often fatal results. This termination, the author believes, in many cases is due to a want of early recognition of the lesion and of its prompt surgical treatment.

THE BUSINESS ASPECT OF MEDICINE.*

BY EDWARD HODGES, M.D.

ALTHOUGH distasteful and unscientific the business side of medicine is a question which may with advantage be discussed, since the collection of fees is a serious consideration to those of the medical profession who depend upon the practice of medicine for their income.

In the following few points presented, it has been my endeavor to make them as brief as possible, and to present certain business methods, that they may be taken up and discussed separately.

It seems advisable from many standpoints to limit the number of free patients, which many of us have, or have had. They take up much valuable time, which might be spent in more profitable ways. For more can be learnt from one case well studied than from a dozen gone over in a hasty manner.

They also increase our likelihood of failure, with the adverse criticism which is often forthcoming, if not from the patients themselves, from their friends.

They increase one's liability to suits for malpractice. In the earlier years of practice it is customary, among some, to encourage the better-dressed element from the dispensary clinic to come to the office. This may make a man's practice appear more flourishing, but the time will come, when these patients become a burden, as pay patients increase. But then one has gone too far to turn back, and they usually prove the least grateful and the most exacting.

I do not think there can be any doubt that the man who devotes his time solely to patients who reimburse him, and only gives a limited number of hours to institutional work, will be the better off, financially, in the long run.

If physicians made it a rule to render their accounts monthly (except those of approved credit), their percentage of collections would be notably increased; also remember "Short credits make long friends." With the monthly bills, the services rendered are still green in the minds of patients, and their gratitude has not had time to become dulled. Another advantage is, one can weed out his dead beats sooner.

Monthly bills are not nearly so appalling to the debtor, owing to the small amount, whereas in the case of semi-annual or annual bills the amount is relatively larger, and in many cases discourag-

ing; and the debtor is at loss to know what to do. Here often the matter drops, until the next time he requires the services of a physician; what he then does, depends. It is usually one of two things.

He may call in another physician, or he goes to his doctor and makes a promise of payment in the near future; which nine times out of ten he never keeps.

It is well also to be careful about the amount of service rendered, and never let it be beyond the patient's financial capabilities, or than the gravity of the case demands.

It is a good plan to have a schedule of charges, and adhere to them, entering them upon your day book and ledger, and rendering the full amount upon your bills. Then if patients become lax in their payments, or any disagreement arises you will be more likely to have a sufficient balance to sue and bring the party up on supplementary proceedings.

If after rendering your bill, you do not hear from them within a reasonable time, a mild note to the effect, if at this time, they are unable to meet the bill in full, if they will kindly call at the office, there will be no doubt, of satisfactory arrangements being made, whereby the indebtedness can be met by monthly or weekly payments. When they present themselves at the office, try and persuade them to give a note, preferably a number of small ones. I have found a man will usually meet his note, or put in an appearance on the day it is due.

In operative cases it is a good plan to request one-half or a part of the fee, at least, so one can pay for any assistance or dressings.

A complete and plain system of book-keeping is essential. The entries in the day-book should be full and complete; signs and symbols are often confusing, and there is a doubt if they would hold in a court of law.

The best day-book I have found is the one published by the "Alkaloidal Clinic." In it it is possible to make full memoranda of service, and amount of fee in black and white.

In closing I should like to repeat a few axioms:
Render your bills monthly.

Render them within a patient's means.

And remember an honest man is never offended by business methods.

156 Halsey St., Brooklyn, N. Y.

* Read at April Meeting, 1903, Long Island Medical Society.

EARLY HISTORY OF MEDICINE IN KINGS COUNTY.

BY WILLIAM SCHROEDER, M.D.

Member of the Medical Society County of Kings; Brooklyn Pathological Society; Brooklyn Medical Society; the Associated Physicians of Long Island.

It is said that the first white man that pressed his foot upon the soil of Long Island did so in the County of Kings, early in September, 1609. A boat crew from the "Half Moon" landed at Coney Island. The French Protestants settled at the Wallabout in 1623, and it is said by some of our historians that on June 9th of that year the first white child was born on Long Island, "Sarah Rapelje." Joris Jansende Rapalie was the common ancestor of all of the American families of that name. On June 16, 1637, he bought from the Indians 335 acres of land, now known as the Wallabout, part of this land now being occupied by the United States Marine Hospital. A direct descendant of Joris was Isaac J. Rapelye, M.D. During his term as president of the Medical Society of the County of Kings in 1835 he recommended that a committee be appointed to prepare a memorial to the Common Council for the establishment of a city hospital for the care of the sick poor. The result of this committee work was the establishment of the City Hospital in 1839, now known as the Brooklyn Hospital. It is therefore evident that the early history of hospitals in Kings County is intimately connected with the name of Rapelye. Drs. Frank B. Green, H. L. Bartlett, John Shrady and R. M. Wyckoff have written on this subject.

The First Surgeon in Kings County: Until the close of the Indian War of 1643 the Colonists on Long Island were dependent for medical treatment on the surgeons that accompanied the ships of the Dutch West India Company. A company of soldiers from Curacoa brought with them Surgeon Paulus Van der Beeck, who was destined to become the first practitioner in Kings County.

Early in 1636 settlers began to people the western end of Long Island, and amongst them was a Wellem Andriensen Bennett, who located at about the present Twenty-eighth street and Third avenue. At the close of the war with the Indians it was found that Bennett had been killed, and his widow took for her third husband Surgeon Van der Beeck. He was interested in farming and public affairs, being Collector of Revenue and Ferry Master. He must have died previous

to 1679, as Mary was once more a widow in this year.

Hans Kierstede, from Magdeburg, Saxony, came to New Amsterdam with Governor Kieff in March, 1638. He is described as a surgeon, and received a grant of land on the Strand (now Pearl street) in 1647. He married in 1642 Sarah Roelofs, daughter of Anneke Jans. He died in 1666, leaving ten children. Roelof Kierstede, second son of Hans, was a surgeon. Jacobus Kierstede, a son of Hans Kierstede, born in 1663, was a surgeon and physician in Flatbush, L. I., 1691. A great-great grandson of Hans was the late Gen. Henry T. Kierstede, of Harlem, a well-known druggist and dispenser of the Kierstede ointment, made from a receipt left by Dr. Hans.

The writer is unable to find any evidence that Hans Kierstede practiced medicine in Kings County. His son, Jacobus, must be the one referred to as the first practitioner in the town of Flatbush.

Gerardus Willemse Beekman: He was born in 1653, studied medicine and settled in Flatbush in 1678; entered politics, and in 1685 was a lieutenant-colonel of the militia and a justice of the peace. In June, 1690, Surgeon Beekman was a member of Leislars Council, and a year later he was placed under arrest by the new Governor Slaughter and held for trial on a charge of treason. The sentence of death against Beekman was not executed, he and others being pardoned. In 1703 he was a member of Lord Cornbury's Council, and in 1709 he was acting Governor of the Province, and from 1711 to 1715 was a member of Governor Hunter's Council. He died October 10, 1723.

A physician who practiced in Flatbush was *John Lodewick*. He presented two bills against the county. The first, bearing date 1759, was for tending a sick woman at Peter Lotts, in Flatbush; the next, in 1767, for tending a sick man from December 19, 1766, to April, 1767, and medicines.

Ere Beekman practiced medicine in Brooklyn in 1690.

Henry (or Hendrick) Van Beuren, in 1754, presented a bill to the county for setting the shoulder of Mary Ann Smith; one in 1765 for doctoring the French neutrals. He was the first physician to protest against the doings of the "Irregulars," in the *New York Gazette*, or *Weekly Postboy* for May 20, 1754. He renewed his oath to the British Government in November, 1776.

Harry Van DeWater practiced the healing art in Bushwick in 1766. The records state that he died in 1776 from a disease contracted on a prison ship.

A bill was received from a *Doctor Vander Voort*, according to the records of the Supervisor, for the treatment of poor people in 1740.

Dr. John Nerbury, who resided in 1710 at the Brooklyn Ferry, presented a bill to the County for taking care of a "sick poor man" in Flatbush in 1732. He removed to Staten Island in 1746.

Dr. Peter or Peters was in practice in New Utrecht in 1790. He kept a school in addition to his practice. His academy was situated on the high ground midway between Fort Hamilton and the village of New Utrecht, later known as the "De Karsy House." His practice extended to Gravesend.

Clergymen have considered it a part of their work to practice medicine. The *Rev. Samuel Megapolensis*, one of the first Dutch dominies of New Amsterdam, was looked upon as a practitioner of standing, having received the degree of M.D. at Leyden.

The *Rev. Johannes Casperus Rubel* advertised at Flatbush, L. I., March 23, 1788, that it had pleased Almighty God to give him wisdom to find out the "Golden Mother tincture" and such a "Universal Pill" as will cure most diseases. He died May 19, 1797.

Dr. Joseph Maud, "late of the Island of Jamaica, but now of the Town of Flatbush, L. I., presents his compliments to the citizens and informs them that he effectually eradicates Cancers, by the application of a plaster." "Helmus Verland, of Richmond County, certifies that Dr. J. Maud of Flatbush in the County of Kings, cured him of cancer of the face in one week. December 15, 1789." "Martha Bloom certifies that Dr. Jos. Maud of Flatbush, Kings County, cured a cancer that had formed on her forehead, in one month. Bedford, Kings County, October 27, 1789."

Surgeons on Long Island During the Revolutionary War.—Battle of Long Island, August 27, 1776. Eastern Division Army Surgeons: William Shippen, surgeon, Pennsylvania; Isaac Foster, surgeon, Massachusetts; Ammie R. Cutler, surgeon, Massachusetts; Philip Turner, surgeon, Connecticut; William Burnett, surgeon, New Jersey.

American Surgeons, Prisoners of War in the British Lines, After the Battle of Long Island: John Davies, surgeon, Pennsylvania; Joseph

Davies, surgeon, Pennsylvania; Silas Holmes, surgeon, Connecticut; Thomas Young, surgeon, Pennsylvania.

On the British Side at the Battle of Long Island: William Poole, physician; John Howe, surgeon.

Col. Atler's Regiment, Dr. Thomas Young, First Pennsylvania Battalion; Third Pennsylvania Battalion, Drs. John and Joseph Davies.

The wounded prisoners taken August 27 were put in the churches of Flatbush and New Utrecht. They wallowed in their own filth and breathed an infected air.

Dr. Richard Bailey, surgeon from the hospital on Staten Island, and *Dr. Silas Holmes*, of Norwich, Conn., a prisoner of war, attended the wounded.

Dr. Holmes represents Bailey as humane, and that he dressed the wounds daily.

Dr. Silas Holmes, who attended General Woodhull, says: "When Mrs. Woodhull offered to pay Dr. Bailey for his care and attention to her husband, he replied he had done no more than his duty, and if there was anything due, it was to me. What a pity that Woodhull had not fallen into the hands of this Good Samaritan in the earlier stage of his illness. His wound neglected for nine days in the hot months of August and September, assumed such a malignant form that not even the medical skill of Dr. Bailey could avail to save his valuable life."—*Henry Onderdonk, Jr.*, "Revolutionary Incidents of Kings County," 1849.

The hospital ship "Falmouth" was at Wallabout Bay during the Revolutionary War. "The sick were suffering from dysentery, fever and small-pox, and were too feeble to help themselves, and the nurses took more interest in their deaths than they did in relieving their wants. Every morning the command was heard, 'Turn out your dead.'"—"History of the British Prison Ships."

"The 'Jersey' was used as a prison-ship and her companions were the 'Stromboll,' 'Hunter' and 'Scorpion,' then used as hospitals. Unwholesome food, foul air, filth and despondency soon produced disease of the most malignant nature. Dysentery, small-pox and prison fever were the most prevalent, and for want of good nurses and medical attendants they died by scores on the 'Jersey' and the hospital-ships."—*Benson J. Lossing*, "Field-Book of the Revolution."

"A large transport named the 'Whitby' was the first prison-ship anchored in the Wallabout,

about October 20, 1776. No medical men attended the sick. Disease reigned unrelieved, and hundreds died from pestilence. In 1778 two hospital-ships named the 'Hope' and the 'Falmouth,' anchored near the 'Jersey,' which was considered the receiving ship. All reported sick were removed to the hospital ships, and it was reported that the sick at this time were attended by physicians."—*Benjamin F. Thompson*, "History of Long Island."

Friday morning, May 15, 1778, Dr. William Poole, Chief Physician of the Naval Hospital, on Long Island, died. Surgeon John Howe died in 1782.

"Let our disease be what it would, we were abandoned to our fate. Now and then an American physician was brought in as a captive, but if he could obtain his parole he left the ship. I remember only two American physicians who tarried on board a few days. No English physician or any one from the city, ever, to my knowledge, came near us. All the most deadly diseases were pressed into the service of the King of Terrors, but his prime ministers were dysentery, small-pox and yellow fever. There were two hospital ships near to the old 'Jersey,' but these were soon so crowded with the sick that they could receive no more. The consequence was that the diseased and the healthy were mingled together in the main ship. In a short time we had two hundred or more sick and dying, lodged in the fore part of the lower gun-deck, where all the prisoners were confined at night."—"The Old Jersey Captive," by *Thomas Andros*.

"A large transport, named the 'Whitby,' was the first prison-ship anchored in the Wallabout. She was said to be the most sickly of all the prison ships. Bad provisions, bad water and scanty rations were dealt to the prisoners. No medical men attended the sick, disease was unrelieved, and hundreds died from pestilence, or, worse, starved on board this floating prison."—"The Prison Ship Martyrs," by *Charles E. West*, M.D., LL.D.

The Municipal Register of the City of Brooklyn, 1848, contains the following items:

"*The Long Island Weekly Intelligencer* of October, 1806, advertises Samuel Osborn, George A. Clusman and Charles Ball as practicing physicians."

"In 1809 the yellow fever prevailed in Brooklyn, and a great controversy arose concerning yellow fever between Samuel Osborn, Ball and Wendell, physicians of the place. On the 28th

of September the Mayor of New York (DeWitt Clinton) issued his proclamation announcing the disappearance of yellow fever and allowing the customary intercourse between Brooklyn and New York. Twenty-eight persons died of yellow fever in Brooklyn, all under twenty-eight years of age."

Dr. William D. Creed was Sheriff of Kings County in 1812.

December, 1812, a fire occurred, consuming the house of *Dr. Clusman*.

September 8, 1822, several cases of yellow fever occurred in Brooklyn.

February 25, 1817, soup houses were established in Brooklyn. Among the Committee of Relief were *Drs. Hunt* and *Ball*.

On June 17, 1824, "town meeting was held, at which a report of a committee was made advising the purchase of a lot of ground near Fort Green for hospital and burial grounds."

November 18, 1827, an infectious disease prevailed aboard the steam frigate "Fulton" at the Navy Yard. Eighty persons were sick of small-pox and fever.

June 20, 1832, a Medical Board was established in Brooklyn in reference to cholera.

August 8th, cholera prevailed in Brooklyn and Flatbush.

July 13, 1835, the small-pox appeared in Brooklyn and the poor were vaccinated *gratis*.

After the Revolutionary War a number of army surgeons remained or came to Kings County to practice medicine.

Dr. John Duffield, a surgeon from Massachusetts and a member of the Society of Cincinnati of that State, located at Fulton and Bridge streets, where he died in 1798. Duffield street reminds us of the old army surgeon.

John Joel Barbarin was in the British service during the Revolution. In November, 1784, he petitioned the Assembly to grant him the right to citizenship. A manuscript record of accouchement cases, attended by the doctor from 1791 to 1796, was kept by him and written in the French language. This manuscript was at one time in the possession of the late J. H. H. Burge, M.D. Dr. Barbarin was one of the first trustees of the incorporated Village of Brooklyn. The original name of Lawrence street was Barbarin street.

Dr. Sweetcope, a Hessian surgeon, served in the British army during the Revolution. After the close of the war he had an office at Clinton and Fulton streets.

Dr. John Beck, an English army surgeon, settled in Flatbush. He was a man of considerable ability, with a large practice, which he continued to enjoy until by accident or illness he was prevented from doing active work. This seemed to act upon his mind, his practice began to fall off, and for several years before his death he was supported by charity. His lifeless body was found in an old well, which then stood on the sidewalk nearly in front of the Wyckoff house. A silver head of an old cane once used by the doctor is now in possession of the Neefus family of Flatbush.

There were in practice about this time two brothers in Flatbush, *James J.* and *John H. Van Beuren*. They seemed to be members of a family of physicians. The grandfather, John Van Beuren, emigrated to New York about the year 1700 from Beuren, near Amsterdam. This John was a graduate of Leyden. His son, Abraham Van Beuren, was physician to the Almshouse, to which office his son Beekman M. Van Beuren succeeded. James, John and Beekman were brothers. Dr. William H. Van Beuren, of New York, was a descendant of this family. Dr. James J. Van Beuren lived in the old Duryea house, where he died in 1802. Dr. John H. Van Beuren was a single man, and lived with another brother who kept a public house near the old jail. He died in 1811. In the proceedings of the Board of Supervisors for 1787 appears a resolution that Dr. Van Beuren attended upon a sick person in the County Jail at Flatbush and that twenty dollars be allowed him.

Dr. Nicholas Schoonmaker was in practice at Flatbush previous to 1817. He was the son of the Rev. Martinus Schoonmaker and died August 31, 1817.

Dr. George A. Clussman. His office was located on old Ferry street in the year 1800. His house was consumed by fire in December, 1812. The *Long Island Weekly Intelligencer* of October, 1806, gives the names of Drs. George A. Clussman, Samuel Osborn and Charles Ball as the practicing physicians of Brooklyn.

Dr. Samuel Osborn. In the year 1806 he had an office at Sands and Fulton streets. He was the son of Dr. John Osborn, of Middletown, Conn. Dr. Osborn removed to New York in 1809, where he died the following year.

Roosevelt Dispensary.—The orthopedic room at the Roosevelt Hospital Dispensary is being equipped and renovated by a sum of money given by a "Lover of Children."

GLAUCOMA.

BY JAMES COLE HANCOCK, M.D.,

Ophthalmologist to the Eastern District Hospital, and to the Long Island State Hospital, Brooklyn; Consulting Ophthalmologist to the Jamaica Hospital, and to the Howard Orphan Asylum.

Read before the Brooklyn Society for Neurology, April 30, 1903.

Glaucoma is a disease of the eye of extreme gravity, the symptoms and pathological changes of which depend solely upon an increase in the eye's tension. The name glaucoma is derived from the Greek word "glaucus," meaning sea-green, and was applied to this disease because the pupil, often, during acute attacks, presented a greenish appearance. This pupillary aspect was regarded by early observers of great diagnostic value, but as it occurs in other forms of acute eye inflammation, it being the result of œdema of the corneal epithelium, we now give to it no important place, but depend upon other and more reliable signs not understood by the early students of the malady.

The occurrence of glaucoma, although possible at any time, is more frequent after middle life, and women are rather more susceptible to it than men. Small eyes seem to have a decided predisposition, and the same is said to be the case, although to a less degree, in hypermetropic eyes. Limited space and the gradual increase in the size of the lens with advancing years would account for this in the former, but in the latter the theory is possibly given more importance than it deserves, for after middle life we find many more hypermetropic eyes, and hence a wider field for the exhibition of the disease. It is easy to understand, however, how the mere bulk of the overdeveloped ciliary body, due to excessive accommodation, in a hypermetropic eye, might tend to increase the liability to glaucoma.

Glaucoma may be primary, coming on without known cause, or secondary, following various inflammations of the eye, as well as some eye operations, noticeably cataract extractions. It may make its appearance as a very acute affection, ushered in by severe and distressing inflammatory symptoms, and rapid loss of vision, all of these symptoms being due to the sudden increase of the intraocular tension preventing egress of blood from the eye through the choroidal veins by pressure upon the venous channels, thus producing great engorgement of all the vessels of the ciliary body and its immediate environment. Immediate relief of the tension is usually fol-

lowed by a return of the eye to a normal condition as no permanent changes have taken place. Unless there is relief the vision soon becomes permanently impaired, and usually ultimately lost.

Chronic glaucoma becomes developed in a much more gradual way, there being usually a steady increase of tension resulting in gradual atrophic changes in the eye, so that when the disease has fairly gained headway we may be able to stop or modify its course, but cannot repair the damage already done, as we often can in acute glaucoma. During the progress of the trouble there are sometimes attacks of an acute nature, and of more or less severity, each one leaving the eye in a more impaired condition than before its occurrence. Without proper treatment early the result is always permanent loss of sight.

Pathogenesis.—The ciliary body secretes a fluid that nourishes the vitreous and aqueous. This in small part passes backward to the vitreous, but for the most part forward through the pupil to the anterior chamber, where the excess escapes from the eye through the ligamentum pectanatum into Schlemm's canal, and the veins connected with it. This canal is situated at the base or outer circumference of the iris, and the part of the anterior chamber in this situation is called the angle of the anterior chamber, the iris angle, and the angle of filtration, and anything narrowing or filling up this angle tends to render the avenue of escape of fluid less patent, and consequently tends to cause an increase of tension in the eye. The escape of the excess of fluid from the vitreous is supposed to occur through the intravascular spaces of the optic nerve, as well as by osmosis through the hyaloid membrane.

The essential change in all cases of primary glaucoma is a more or less complete obliteration of the filtration angle, thus making it more difficult for the excess of fluid to escape, and removing the safety valve that had previously made it possible to maintain a normal relation between internal pressure and external resistance.

In acute primary glaucoma is as has been noted, due to intense congestion of the ciliary region, and also probably to the lack of proper blood supply to the retina, as well as pressure upon the nervous elements of this membrane.

The gradual loss of sight in chronic primary glaucoma is directly due to pressure upon the retina and optic nerve papilla, causing atrophy of both. The head of the nerve finally becomes deeply excavated.

In secondary glaucoma it is not essential that the angle of filtration should be interfered with,

for many other conditions may bring about an increase of tension, such as swelling of the lens, increased secretion from the ciliary body due to inflammation of the body, complete adhesion of the margin of the pupil to the capsule of the lens or to the hyaloid membrane after cataract operations, due to an attack of iritis, thus making it impossible for the fluid to escape into the anterior chamber, and causing it to collect behind the adherent iris, wounds or perforations of the cornea from ulcers to the edges of which the iris has become adherent, thus causing the same condition as that last mentioned, as well as subretinal oedema, and various intraocular tumors.

The etiology of primary glaucoma is often obscure, and often quite impossible to determine. The immediate and determining local cause is pressure of the ciliary processes against the base of the iris, and consequent compression of the filtration angle. Exciting causes are usually those that result in congestion of the ciliary region. Predisposing causes are hypermetropia, probably, owing to the increased bulk of the ciliary body, due to the great call upon its exercise in such eyes, smallness of the eyes, and many forms of nervous affection due probably to the connection by means of the cervical sympathetic between the general nervous system and the ciliary ganglion, attacks of glaucoma being rather frequently brought on by shock and fright, and probably the tendency to attacks is much greater when there is some disturbance of the general nervous system.

The leading symptom of glaucoma is, of course, increase of eye tension.

In acute glaucoma there is rapid rise of tension, ciliary engorgement, great pain, anesthesia of the cornea, a dilated pupil having a greenish hue, and rapid loss of vision which becomes permanent and absolute unless proper treatment is immediately employed.

Chronic glaucoma is ushered in by gradual increase of tension, and is often accompanied by acute attacks of varying frequency and intensity, each one leaving the eye more impaired in function than it was before it.

In both forms the symptom of seeing rings around the light, so often complained of, is caused by an edema of the epithelial layers of the cornea. While this symptom is not exclusively peculiar to this disease, it is a sign of some importance, its chief characteristic being that in the ring around the light all the colors of the spectrum are seen. The flame is made out with practically normal distinctness, and immediately

surrounding it is a non-luminous zone, next in order being the violet zone, and at the circumference of the ring the red. This is always the arrangement.

Treatment.—Our efforts must in all cases of acute or progressive glaucoma be directed toward a reduction of the eye tension, and in most cases some form of operative procedure is necessary. In a few treatment without operation is successful.

The operative measure that gives the best results is thorough iridectomy. The segment of iris must be removed by excision close to its base, so as to remove as much of that portion that is blocking the angle of filtration as possible, remembering that it is the pressure here that is the prime factor in the trouble.

In acute attacks the operation should be resorted to as early as possible, as by promptness vision may be fully restored, a few hours' delay usually resulting in permanent loss of sight. In chronic cases the same haste is usually not as necessary, but little time should be lost. While in chronic cases we may check further progress of the disease the visual results are not as satisfactory.

The most recent operative procedure is the extirpation of the superior cervical sympathetic ganglion. The theory upon which this operation is done seems to be that in those cases which are caused or influenced by temporary or permanent derangement of the general nervous system, acting either through the nerves or blood vessels; that is causing dilatation of the pupil or hemorrhage into the eye, or even congestion of the ciliary body, it is desirable to sever the connecting link between the general nervous system and the eye, to some extent at least. Where there is a marked predisposition to glaucoma a dilatation of the pupil might determine an attack, as the thickened base of the iris when the pupil is dilated tends to obliterate the angle of filtration in the anterior chamber. In an eye so predisposed any agent that would cause the pupil to become contracted would, of course, lessen the chance of an attack by removing the bulk of the base of the iris from the angle. Stimulation of the cervical sympathetic in the neck causes dilation of the pupil, while division at this point causes its contraction; hence, the idea of the new operation, this idea being also influenced by the action of the sympathetic with regard to the blood supply, so that the operation seems applicable to some cases of hemorrhagic glaucoma, among others. The reports concern-

ing the results of the new method are too few as yet to make it possible to put a value upon it.

With regard to drugs little need be said. Every drug capable of dilating the pupil has been known to bring on attacks of glaucoma in eyes predisposed to it. This is particularly true of atropine, and we should be very cautious when using this drug in patients over forty years of age in consequence of the greater frequency of the disease after middle life. Cocaine when used alone has been known to bring on an attack, but as it has the unique property among the mydriatics of contracting the ciliary blood vessels, and diminishing the sensibility of the ciliary nerves, both of which effects tend to lower the intraocular tension, it is of great value when used in connection with eserine, which latter contracts the pupil, and keeps the iris, as much as possible, out of the filtration angle. The use of drugs is usually of but temporary benefit, for operative interference is in almost all cases an imperative necessity.

43 Cambridge Place.

THE USE OF ESSENCES OF ESSENTIAL OILS FOR DISINFECTION OF THE HANDS.

Abbott, in the department of Medical Progress (*Boston Med. and Surg. Jour.*, March 19, 1903), quotes Calvello as follows: Calvello, after a series of experiments with the essences of essential oils, believes them to be superior to corrosive sublimate for the disinfection of the hands. In consequence of the collection of detritus around and under the finger nails, he finds that the ordinary methods of disinfection are not efficient (scrubbing and the application of soap, alcohol and corrosive sublimate). Some of the essences have decided bactericidal power and are more penetrating. The essences chosen for experiment were canella, thyme, geranium and patchouly. He at first employed mixtures of distilled water with 6-per-cent. alcoholic solutions of the fresh essences. He found it necessary to increase their strength to a 9-per-cent. solution of canella, 12 per cent. of thyme and 18 per cent. of geranium. These solutions gave satisfactory results. The patchouly has too feeble antiseptic power for general use. The microbes employed for experiment were the staphylococcus pyogenes and the bacillus coli.

Site for New Manila Hospital.—Benito Lagarda, a Filipino member of the Philippine Commission, has given a site in Manila for the General Hospital which is being founded under the auspices of Bishop Brent, of the Episcopal Church.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

STATED MEETING, APRIL 21, 1903.

The President, CHARLES N. COX, M.D., in the Chair.

There were about 150 members present.

The meeting was called to order and the minutes of the previous meeting read and approved.

REPORT OF COUNCIL.

The following candidates have been accepted by the Council:

- J. E. Blake, P. & S., 1898.
- G. W. Vandegrift, P. & S., 1895.
- A. W. Sully, Bellevue, 1891.
- E. C. Brennand, P. & S., 1895.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the Council, were declared, by the President, elected to active membership:

- J. J. Colgan, L. I. C. H., 1882.
- A. T. Birdsall, Univ. of Minn., 1896.
- E. A. Dawson, Albany Med. Coll., 1902.
- G. P. Thomas, Univ. of Penn., 1901.
- J. A. Quell, P. & S., 1902.
- E. W. Skelton, L. I. C. H., 1901.
- P. H. Moak, Albany Med. Coll., 1901.

PROPOSITIONS FOR MEMBERSHIP.

The following applications have been received: Gaetano Bottaro, 266 Union St., University of Naples, 1899. Proposed by Wm. C. Woolsey, seconded by A. M. Judd.

James E. McEntee, 144 Union Ave., P. & S., N. Y., 1901. Proposed by J. C. Kennedy, seconded by O. A. Gordon.

Franklin J. Voss, 1050 Greene Ave. Proposed by J. Fuhs, seconded by Glentworth R. Butler.

Everett W. Russell, P. & S., N. Y., 1891, 71st St. and 15th Ave., Bath Beach. Proposed by Membership Committee, seconded by T. B. Hege-man.

The President announced the following deaths since the last meeting:

Charles Henry Jones, L. I. C. H., 1889, died March 26; member from 1890 to 1895.

Frederick Matson Nehrbas, L. I. C. H., 1891, died April 14, 1903; member from 1891 to 1894.

Thomas Allison Pineo, L. I. C. H., 1898, died April 19; member from 1899 to 1900.

SCIENTIFIC PROGRAM.

1. Presentation of New Instrument: Urethral Irrigator and Dilator. By E. E. Wilson, M.D.

2. Paper: Ectopic Pregnancy Clinically Considered, with a plea for its early recognition and radical treatment. By W. B. Chase, M.D. Discussed by Drs. Hyde, Baldwin, MacEvitt, Polak, Fowler and Jewett. Closed by Dr. Chase.

3. Paper: Uses of Ergot: An old manuscript, to which is added a new postscript. By A. T. Livingston, M.D., Jamestown, N. Y. Discussed by Drs. G. D. Lombard, F. M. Wiggin and Alexander Lambert. Closed by Dr. Livingston.

EXECUTIVE SESSION.

Dr. J. M. Winfield, Directing Librarian, read a letter from Dr. William Browning donating to the Library some 1,800 volumes of the medical library of the late Dr. Jones of New Orleans.

Dr. Hubbard made a motion, seconded by Dr. Fairbairn, that the generous gift of Dr. Browning to the Library be accepted, and that the Secretary be directed to write a letter of thanks to him; also that the Directing Librarian be empowered to have a suitable book plate prepared to permanently mark this collection. Unanimously carried.

There being no further business, the meeting was adjourned.

W. S. HUBBARD, Secretary.

THE BROOKLYN GYNECOLOGICAL SOCIETY.

FREDERIC J. SHOOP, M.D., Editor.

Stated Meeting, March 6, 1903.

The President, FRANK BALDWIN, M.D., in the Chair.

BOSSI'S DILATOR.

DR. CHARLES JEWETT exhibited a Bossi's dilator, as made by Tiemann. The cervix is stretched by four arms or prongs which are separated by a mechanism worked by a powerful screw at the handle of the instrument. When the instrument is closed the four prongs which make up the dilating end are together small enough to readily enter the cervix. The prongs are provided with caps which are slipped over them to give a broader bearing after the dilatation is well begun.

The instrument seems to be very popular abroad. Foreign journals for some time have been full of reports of it.

Possible objections to it are the sharp and narrow bearing of the dilating arms; the fact that the power, which is regulated by a screw is not controlled by the muscular sense; and that the hand cannot be introduced alongside the instrument to watch the process of dilating. Experience, perhaps, may enable the operator to know the safe limit of force to be used upon the screw.

It is a curious fact that the Bossi instrument is very simple in construction to that devised by Dr. H. S. Lott of Winston, N. C., which he published in 1892. The latest and best form of the Italian dilator, which is a marked improvement on the instruments shown here to-night, is still nearer the Lott model.

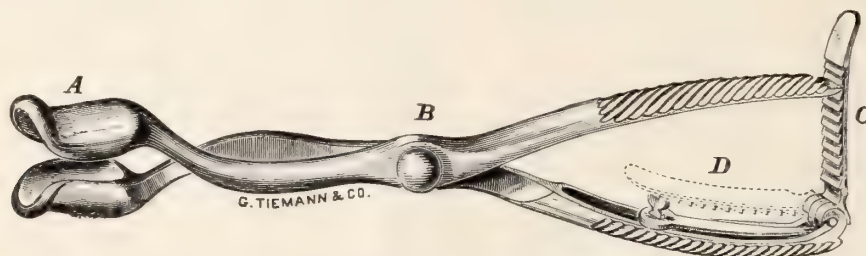
I prefer the dilator of Gau, a modified model of which I have here. It presents a broader bearing for dilatation, permits the introduction of the hand alongside of it and the pressure is gauged

loath to spread such sharp tips as these. With the large tips I presume there would be little danger of doing damage.

In a cervix that will admit the finger one can always use the Voorhees bag, and that has not failed to dilate any vicious cervix that I have encountered. I connect it with a fountain syringe, regulating pressure by the height of the syringe, imitating a pain, and making, if necessary, traction on the tube connected with the bag. As a rule, this method will efficiently dilate even a grizzly cervix. There is less contusion and also more normal thinning of the cervix with the Voorhees bag than with manual dilatation. I prefer manual dilatation, if more speed is necessary, as in *accouchement forcè* with the patient in convulsions or bleeding severely.

DR. CHAS. JEWETT: The Voorhees bag has been modified by Coe. Coe's bag consists of two cones, point to point, the lower one smaller than the upper.

The essential point for the establishment or ac-



"The Gau Dilator."

by the grasp of the hand. Three sizes are made. I use the medium size, replacing the smallest with the ordinary gynecologic dilator and the largest with the hand.

Discussion.

DR. R. H. POMEROY: Dr. Jewett speaks of the baneful influence of the mechanical force of the screw. I find that with a moderate pressure of the fingers, grasping the blades, I can prevent the levers from acting on the blades at all; so the instrument appears to be useless in any case where the cervix is moderately rigid.

DR. R. L. DICKINSON: I brought the same instrument here to-night that Dr. Jewett has just shown you. It is of the Kny-Scherer model, and is perhaps a little better in the device, but the mechanism is the same. Personally I have not used it. For the cases in which one can get an instrument as big as that in the cervix, I have had no difficulty in dilating by other means. Where I could not get my finger in, I should be a little

celeration of labor, according to a recent writer, is the dilatation of Müller's ring. This is accomplished by the Voorhees bag. Its advantage over the Champetier-de-Ribes bag is that it does not tend to hinder engagement by dislodging the head.

DR. R. L. DICKINSON: I should like to say that Dr. Jewett's reference to the Champetier bag is one worth drawing attention to, because it has received so much notice in the journals and textbooks. It is expensive, and very fragile, the tube pulling away from the body of the bag very readily. It soon becomes brittle. The whole set of Voorhees bags costs but \$1.50, will last three years or more, will stand a great deal of traction, and they do not dry up, though left in one's bag for a long time.

HYDROSULPHATE OF SODIUM AS A DEPILATORY.

DR. CHAS. JEWETT: I should like to ask if the members have had any experience with the hydrosulphate of sodium as a substitute for the razor.

It has long been exploited as a depilatory for surgical use and various secret preparations of it are sold by dealers. My attention has been called to it again by Dawbarn's paper. He says it does not irritate in 25 per cent. solution. With me it frequently causes a dermatitis unless great care is used to avoid friction and prolonged action. A 15 per cent. solution acts fairly well and irritates but little or not at all.

DR. W. E. BUTLER: I used it in several cases about a year ago, and found it produced a dermatitis and an ulcer of the skin, which lasted for two months. I have used it on the scrotum twice. I think if you leave the solution on the part for some little time and do not rub too soon, the hair comes off better.

DR. R. L. DICKINSON: The strongest objection is the odor.

As Dr. Jewett says, people differ very much. With some patients the vulva is extremely sensitive. I think the solution ought not to be put on thick and matted hair. If you take the No. O. clipper of the barber and clip the vulva clear, which does not scrape as the razor does, you can use a smaller amount of the solution or paste and get a quicker effect and less irritation. Where the hair grows along the edge of the labia majora, dipping into the tunnel or gulley between the majora and minora it is almost impossible to use the solution or paste without its going on to sensitive surface.

I have tried using it to-day, three days before the operation, but the cases on which I used it last week are irritated and have been irritated a little ever since.

RUPTURED DERMOID CYST; PERITONITIS; OPERATION; RECOVERY.

DR. CHAS. JEWETT: The case referred to was operated upon two days ago. The diagnosis was ovarian cyst with twisted pedicle. The tumor was considerably larger than a foetal head at term. The woman had been sick in bed for eight weeks under treatment for typhoid at the hands of an irregular practitioner. She was greatly emaciated and very weak. Temperature at operation 101.5.

On opening the abdomen the tumor was found to consist of two cysts containing clear watery fluid and a third, a dermoid, which had ruptured at one point, permitting leakage into the peritoneum. There were several ounces of free lymph in the pelvis and the lumbar fossæ. The peritoneum was everywhere studded with fibrinous patches. The peritonitis was apparently general. After the removal of the cyst and the appendix,

the patches were removed by rubbing with gauze sponges, and the peritoneum washed out by prolonged irrigation with salt solution containing formalin, 1:5000. A gauze pack was placed, filling the pelvis, and led into the vagina through a wide opening. Neither the pulse nor the temperature exceeded 100 since the operation.

The patient's recovery has been uninterrupted, except by a mural abscess.

DR. W. P. POOL: Some time last year I reported a case here, in which a dermoid had ruptured into the peritoneum, during forceps delivery. The posterior vaginal wall was also ruptured, allowing the contents of the cyst to be evacuated. The cyst was drawn down and amputated, and the patient made a good recovery, although the peritoneum was badly soiled at the time.

THE BROOKLYN PATHOLOGICAL SOCIETY.

438th Regular Meeting, February 12, 1903.

HENRY G. WEBSTER, M.D., Editor.

(Continued from p. 247.)

REPORT OF A CASE: A UNIQUE CASE OF EXPULSION OF EYEBALL FROM ORBIT IN A PATIENT WITH "BRIGHT'S DISEASE."

DR. J. A. KENE: E. C., aged twenty-two years, single, U. S., housekeeper, of good family history, consulted me late in September, 1902, complaining of a dull headache, loss of appetite, swelling of face and impaired vision. These symptoms had developed slowly during the preceding four weeks. I prescribed for her and requested her to come back in a few days and bring a specimen of urine for examination. She returned in about a week, and brought to me a note from Dr. Wright, whom she had meanwhile consulted for dulled eyesight. The doctor had found albuminurin retinitis. Frequently afterwards I tested the urine, and found it scanty in amount, of low specific gravity, 1015 to 1020, with considerable albumin and epithelial, hyaline and granular casts.

She improved somewhat under treatment until about November, 1902, when I noticed a marked subconjunctival ecchymosis of the left eye with great edema of both lids. No pain in eyeball or head. Hot water applications, etc., after several days brought down the swelling and the hemor-

rhagic discoloration entirely disappeared. V. O. S. 3 ft., O. D. 5 ft.

After about 48 hours from this apparently normal external appearance of the eyeball, I was sent for, and found the left eyeball expelled forward in a straight line and projecting fully $\frac{3}{4}$ of an inch out of the orbit with great edema of the lids and discoloration. No pain in eyeball. Dr. Wright saw her in consultation, and will give his report in extenso. Right eye continued unaffected until about December 1st, when the vision failed entirely. There was some slight edema and discoloration of the sclerotic of the right eye, but it disappeared with applications of ice. She died on December 9th, having been semi-comatose for ten hours before death. No post mortem could be had.

Discussion.

DR. E. W. WRIGHT: As has been stated by Dr. Kene, I saw this case about September 29th. She came asking for a pair of glasses for better vision. On examination it was found both retinæ were affected with albuminuric retinitis. Vision was poor, as I remember, 22. Albumin was found in the urine, and she was returned to Dr. Kene. It was a myopic eye. Some time later the doctor asked me if I would see this case. The left eye at that time was expelled from the orbit, so much so that it rested on the lower lid, the upper lid being swollen, red and edematous. The eye was directed straight forward, neither deviating to one side or the other. The cornea was still visible but somewhat dimmed. One could see the pupil through it, and the tissues around the eye were very edematous and somewhat reddened. It was exceedingly large and thicker than an eye during enucleation, and we were surprised at the large size. The history was that it came out in the night without the knowledge of the patient.

At the time I saw her she had no pain. It seemed almost impossible that the muscles of the eye could be so stretched without any pain, or even that the optic nerve would permit the eye to come so far forward, but as I said before, it was a myopic eye—a large sized eye. The question was, what caused the expulsion and what was to be done. At the time I thought of hemorrhage, as there seemed to be no evidence of cellulitis or peritonitis or anything of an inflammatory nature. It seemed no growth could be so sudden as to expel an eye in a night.

A week later the right eye showed some ecchy-

mosis of the conjunctiva and some edema of the lids. We applied ice. Whether it had any effect or not, there was no evidence of further trouble with the right eye. Death followed shortly afterwards. I do not know the cause of the eye condition, whether hemorrhage or a blocking up of the cavernous sinus. I looked up the literature. The only reference to such a condition was, that when the ecchymosis passed from one eye to the other, the cavernous sinus might be involved. I would like to hear some discussion on the matter.

DR. J. S. WOOD: I should like to ask if there were any other evidences of edema than of the eyelids themselves?

DR. J. A. KENE: Yes; when she first came to me in September she had the usual swelling and puffiness about the face, and later, before death, she had some puffiness about the ankles, too.

DR. J. S. WOOD: I thought in the soft tissue back of the eye there might be some retention of fluid, and being a myopic eye, which are, oftentimes, I think, very loosely fixed in the orbit, possibly that might in part explain the ptosis.

REPORT OF CASE: PANOPHTHALMITIS WITH ORBITAL CELLULITIS.

DR. J. S. WOOD: This is a case that came under my observation at the Kings County Hospital, and I give below the history obtained by the House Staff:

Laura J., white, aged twenty-nine years, married, U. S., machine operator; was admitted on March 1, 1902, suffering with what was apparently an attack of acute articular rheumatism.

Family history: Negative, except that her father died ten years ago of Bright's disease. Mother alive and well.

Previous history: Had the usual diseases of childhood, *i.e.*, measles, scarlatina and pertussis. Denies syphilis and does not use alcohol. Two years ago she had a similar attack of rheumatism without the eye complications.

Present illness: One week ago she was seized with pain in the lower extremities, which gradually increased and became general over the whole body. The pains were severe and located in the feet, limbs, lumbar region and head. Patient has a cough and pain in the chest, especially at night. No gastric disturbance except loss of appetite. Deafness for a number of years. Spots before the eyes.

Chief symptoms: Pain in feet, back and head, especially in the occipital region.

Examination: Heart, blood vessels and lungs

negative. Both ankle joints swollen, red and painful. The joints of the first finger of the right hand are similarly affected. The right eye is injected and sore.

I was brought into the case because the patient complained of some disturbance of vision, and on going to her, she said she saw double.

Examining the muscular condition as well as I could, having her look at my hand and finger, I discovered she had double homonymous diplopia and a paralysis of the right external rectus muscle. That was the first evidence of any eye trouble in the case. She was then taking salicylate of soda.

I endeavored to make an examination of the fundus, but was unable to do so, the patient being in bed in a brightly lighted ward, where we had no means of making it dark. The iris was normal, it reacted promptly, and apparently the fundus was all right. It was purely conjecture, because I could not examine with the ophthalmoscope, and she said she saw clearly with her right eye. I advised the House Physician to keep up the salicylate treatment until I saw her again, which was two days later. At that time the diplopia still persisted and there was an increased injection in the eye. The pupil was somewhat sluggish, and had the appearance of what I thought was a beginning complicating iritis due to the rheumatism. However, on account of the paralysis of the external rectus muscle, I suggested that the treatment be changed from the salicylate of soda to the iodide of potash and ordered ten grains t. i. d. after meals, increasing five grains every day, and pushing it as rapidly as possible.

Whether due to the treatment or not, the rheumatism promptly subsided, but the eye symptoms kept on increasing in intensity—the eye became more red and injected. Dr. Simmons saw the case two days later and found an exudate in the pupillary space. I examined the patient two days afterward, and found there was an exudate in the pupillary space, and also, an active purulent process, apparently suppurative iritis.

Along with that, however, there were symptoms of increasing paralysis of all the ocular muscles and advancing ptosis. The movements of the eyeball in every direction were limited, the eye was pushed forward, and she was suffering excruciating pain. Then I ordered hot compresses to the eye. Atropine had been ordered by Dr. Simmons, 2 gr. to the ounce. I ordered in addition to that hot compresses, occasionally analgesics to relieve the pain, thorough purgation and continu-

ation of the iodide of potash. This treatment was kept up for a couple of weeks.

I will say, however, to go back, that the urinary analysis showed on entrance of the patient, that the urine was loaded with albumin. The case continued to increase in intensity, all the inflammatory symptoms getting worse. The suffering of the patient was unendurable, so much so that ordinary doses of morphine would not control the pain, which became worse and worse. Ptosis increased as time wore on.

I simply kept the case for three weeks under observation. I wanted to take the eye out, but was afraid to do so on account of the kidney complication. There was a question whether I should submit the patient to operation under ether, and the possibility of death from kidney complication, or whether I should let her go on with all the pain as it was. Finally, however, the tension was so increased that the eyeball was projected far forward so that it was practically out of the orbital cavity.

I made free incisions around the eye in order to see if we could let out the pus that we thought might be there, but we got nothing but a few drops of clear serum. There was no pus apparently that could be reached by ordinary incision in the eye. The eye became more projected. I decided to take it out, and finally the eye was enucleated. The cornea then had begun to slough.

Before the eye was removed the whole conjunctival and orbital tissue around the eye was simply a mass looking like a beefsteak, in which the eye was imbedded. The eye was removed from the orbital cavity by the swelling. I took it out and removed large pieces of this edematous, largely inflamed mass, and gave it to Dr. Murray, who examined it for me. The thought occurred to me, was it rapidly developing sarcoma, although clinically it did not seem so. He examined it, and he thought it well to submit the case to the Pathological Society.

The question in my mind is how all this infection got in the eye from a case of acute articular rheumatism. We all know orbital cellulitis and panophthalmitis do occur after rheumatism, after syphilis and exposure to cold and after traumatic influences, and so on, but certainly it was a very remarkable and intense infection of the orbital cavity and the eye itself. And then again, a point of interest to me was, why should one have a suppurative panophthalmitis and suppurative orbital cellulitis occurring simultaneously?

The first symptom was the ocular paralysis—

the patient saw double. The second thing that was noticed was, that the iris began to show evidences of intra-ocular infection, and the intra- and extra-ocular conditions were apparently simultaneous infections, and that to me is an unexplainable thing. Of course, we can have panophthalmitis and orbital cellulitis. We all meet with that, but in this case they came together.

Discussion.

DR. A. MURRAY: I saw the eye at the time the doctor proposed taking it out. As I had not seen many eyes of that kind, I was anxious to examine it. I made a lateral section through the entire eye and through the center, and made anterior and posterior sections showing the lens. It shows up pretty well. It shows pus inside and all the coats of the eye at the same time.

DR. J. S. WOOD: I delayed operating as long as I dared to on account of the Bright's disease. A report was made on the day the anesthetic was given, that the urine was loaded with albumin. The patient took the ether beautifully and came out excellently, and had absolutely no ill effects from the anesthetic and apparently made a good recovery.

RESULT OF INJURY TO EYEBALL 15 YEARS AGO— REPORT OF CASE.

DR. J. W. INGALLS: The case I have to present is that of a man, who, so far as he knows, had both eyes normal until fifteen years ago, when he was struck by a baseball in the left eye. He immediately went to the Brooklyn Eye and Ear Hospital, and I find this record: "Diagnosis—contusion of globe." It also states that the anterior chamber was filled with blood, pupil widely dilated and vision nil. He said that the inflammation subsided, and he had no pain or further trouble with it.

About six months ago he noticed a lump in his eye, and upon raising the lid we found there quite a large staphyloma on the upper portion, and a second in the lower portion, *i.e.*, the sclera, forming sclerido-choiroiditis anterior. The peculiar thing about the eye is that no iris can be found. It is a case of complete aniridia.

Now, there are two hypotheses. First, that it was a case of congenital aniridia, and that the injury had nothing to do with it; the second and more probable hypothesis, of course, is, that the absorption or atrophy was caused by the blow. Against the first hypothesis the man states that

so far as he knows, his eye was perfectly normal. Probably if that condition had been there he would have known of it. I think these cases are quite rare, but Dr. Smith informs me he has a case under his care somewhat similar; a sailor who was hit with a sandbag, and that the iris underwent an absorption very similar to the condition in this man before you.

The next point of interest is this: How is it possible for a man to receive such a blow upon the eye and still have the lens remain intact and not get a traumatic cataract? Of course, that we would expect. What worries the patient most now is the extension of the staphylomata. He is afraid that they are going to cause his eyeball to burst. There has been no vision in the eye since the time of the accident. He has been totally free from pain.

SECTION ON OPHTHALMOLOGY.

STATED MEETING, FEBRUARY 24, 1903.

The President, JAMES W. INGALLS, in the Chair.

SCIENTIFIC SECTION.

DR. H. N. HOOPLE presented a patient with a history of profound inflammatory reaction, first in the right eye and then in the left eye, associated mysteriously with her pregnancies when they occurred in Brooklyn, notably absent in three intervening pregnancies occurring in Southern New Jersey. Dr. Hoople then read the following report: The cervix uteri was lacerated at time of first confinement, March 10, 1893. This was repaired at the time, but the repair was ineffectual and was never subsequently attended to. Shortly after this, one eye became inflamed and was treated at the Brooklyn Eye and Ear Hospital.

In April, the month after the confinement, she moved to Vineland, N. J., when she had no further eye trouble at that time nor during three successive pregnancies, in 1894, 1896 and 1898. In this last year she again returned to Brooklyn and had no eye trouble in either that or the following winter. But in December she again became pregnant and the second month of her fifth pregnancy, the right eye became irritated and painful. Photophobia and excessive lacrymation were ameliorated for periods, by treatment received at the Brooklyn Eye and Ear Hospital, but trouble persistently remained throughout the pregnancy and did not disappear at time of con-

finement, August 28, 1901. She kept her right eye covered and did not perceive till she arose from her confinement that her vision was greatly impaired in her affected right eye. She was under treatment by a homeopathic oculist from that time till she came to me on October 11, 1901. At this time she had had several weeks of sleepless nights on account of extreme pain in right eye and almost constant headache extending from the eye to the occiput. Her photophobia was extreme; there was excessive lacrymation and the lids were held almost closed. There was some conjunctival injection but the lids were normal. The ocular conjunctiva was deeply injected, especially in the ring around the cornea. Somewhat more than the upper half of the cornea was covered by extension of a plastic exudate supplied with vessels like a pannus creeping downward over the nasal portion of the cornea. Three separate foci of intense inflammatory reaction were marked by a papular hyperplasia between the neighborhood of the ciliary body and the sclero-cornea margin. The usual sedatives were employed, atropin, dionin, hot applications, etc., but radical treatment was directed toward relief of faulty conditions in the right side of the nose. Improvement was soon noted. In one month the inflammatory reaction in right eye was rapidly subsiding and the vision of left eye was regained to the extent of $\frac{7}{10}$ without correction. In another month all inflammatory irritation had disappeared except so far as indicated by slight circumcorneal injection at the lower nasal margin of the cornea and the inflammatory exudate had become very largely absorbed, but it was not till February 5, 1902, that this betterment resulted in a vision of fingers at six feet right eye, that of left being $\frac{7}{10}$. The exudate was opaque and white at its advancing edge, shooting out cloudy filaments into the clear cornea beyond. About one-third of the cornea was perfectly clear and so also was the aqueous through which could be seen the irregularly dilated pupil, the pupillary space being dotted by a line of pigment cells from which the iris had been torn away by the mydriatic. The vitreous was quite hazy and the fundus could not be seen. The eye ball was very soft, but painful on pressure. The vision of the right eye was ability to count fingers at six feet. That of the left eye was $\frac{2}{10}$ + improved to $\frac{6}{10}$ by + 0.50s + 1.50 c 90°. Javal being 2.00 at 90°. The impairment in vision, O. D. had been continuous from the time of her confinement till now, that of the left eye had but recently begun to manifest itself. And one month later still, April, 1902, V.O.S. $\frac{9}{10}$ +. The right eye

has remained well from that time to the present. The patient should have been unwell, September 6, 1902, two days later, not the right but the left eye began to be irritated and continued to be more and more so in the same way as the right had been in the preceding pregnancy. She consulted Dr. Pomeroy, who referred her to Dr. Collins October 6, 1902. A week later I saw her again and found the same kind of inflammatory irritation in its incipency as had gone on to such destructive lengths in the right eye with symptoms of photophobia, excessive lacrymation, pain and tenderness and impaired vision. The process is being held in check as can be seen by observation of the patient, who is now in her sixth month of pregnancy. If the case is of interest to the section, it is, doubtless, not on account of its present condition, but on account of its past history.

In discussion of the case, inquiries were made as to ulcers. Reply was that there was no real break or solution of continuity, but that such solution of continuity was not far away when eye was at its worst. Dr. Oatman had not seen anything like this of an evidently reflex character, but he had had at his clinic a young man with an intense sclero-corneal inflammation that cleared up under treatment with boric acid solution.

Dr. Jameson made a brief verbal report of a case of binocular high myopia on which he had operated three years ago. In one eye he had done a simple extraction. The case behaved well for two or three days, when unfortunately a hernia of the iris occurred. An effort was made to replace it, but it became lacerated and was subsequently excised. In the other eye a needling was done and absorption followed. Good results were obtained, as to vision, with a plus 7.00 sph. V. $\frac{20}{70}$ both. But a cyst appeared in the site of the incised iris which had a yellow reflex like the nucleus of a lens. Below this yellow reflex a protusion soon took place of the character of a double cyst, the surface showing vessels. Dr. Jameson mentioned the theories advanced in explanation of the cysts. First, that of epithelium being displaced into the iris which subsequently underwent changes resulting in free cell formation and ballooning to complete final cystic form. Second, a cyst of the iris is so imprisoned as to take a new activity in cell formation and thus develop into the complete cyst. This latter theory he favored. The cyst was removed.

Dr. E. L. Oatman then exhibited slides showing sections made from the neighborhood of the ora serrata and through the optic nerve of an eye which had been removed on account of meta-

static carcinoma of the choroid. Dr. Oatman then read abstracts from the history of the case. Full history together with a complete resumé of the literature of the subject appears in the March number of the *American Journal of the Medical Sciences*.

LONG ISLAND MEDICAL SOCIETY.

STEPHEN L. TAYLOR, M.D., Editor.

The 119th Regular Meeting was held on the evening of April 7, 1903.

The President, DR. R. H. POMEROY, was in the Chair. The program was as follows:

Papers, "The Economics of the Practice of Medicine," Dr. Hoople; "The Business Side of the Practice of Medicine," Dr. Hodges.

Discussion.

DR. EDWARD E. CORNWALL: Nearly all papers read before medical societies are on scientific subjects. That is right and proper; but it is also fitting that we give some attention to the subject which Dr. Hoople has treated; for the physician can not live by science alone. He must practise the economics of his profession or he will have to practise economy. We are in the profession of medicine not altogether for the benefit of others. Of course we are not in it for all we can make out of it,—that position no right-minded physician can take; it is the position of the quack,—but if we work hard we are surely entitled to a decent living. We are scientific men, and we are certainly philanthropists as a class. A large number of the population of Greater New York get their medical services from us for nothing in the hospitals and dispensaries;—but we owe it to ourselves and those who may be dependent on us that we occasionally descend from our scientific and philanthropic pedestal and collect enough money to pay our current bills and the premiums on our life insurance policies.

The economics of the practice of medicine consists essentially in getting and keeping patients and getting money. To get patients we are compelled to rely, in most cases, on our individual efforts, and the efforts of those who interest themselves spontaneously in our behalf. We have to become personally acquainted with people, and should go out among them as much as possible, especially in the earlier years of practice. So-

ciety, the church, the club, everything that brings us in touch with people in a respectable way, are economically of use. Casual acquaintances are more likely to become future patients than total strangers. Later we need not exert ourselves so much to extend our circle of acquaintances, for when we have once got a respectable nucleus, and established something of a reputation, our practice will have a natural tendency to grow of itself, if we comport ourselves properly.

Undoubtedly the physician's manner is a very important factor in securing him patients; and it is a question of importance with every physician, who bears in mind the economics of his profession, whether he should pose or be natural in his manner. Of course the natural manner is vastly to be preferred, and they can profitably retain that manner who possess marked ability, force and culture; but those who do not possess those qualities in a marked degree find it to their economic advantage, in their professional relations, to assume some particular manner; and the safest and by no means the least effective is a very reserved manner. It covers a multitude of deficiencies and frequently wins a reputation for profound wisdom and skill.

It is in accordance with sound economics to be very attentive to our patients. Calls should be made as promptly as possible, and quite as frequently as the physician thinks necessary. It is better to make more calls than the patient expects than to give him any excuse for thinking that the physician is neglecting him. And when the patient is apparently well, it is good policy at the last necessary call to tell him that you will call again on a certain day unless notified beforehand that he is so well as not to need you. This puts the burden on him of deciding when he wants the physician's visits to cease if they have ceased to be necessary.

Sympathy is often as valuable in treating disease as medicine, and it is always to the physician's advantage to give it. Most physicians are naturally sympathetic, and it is usually easy for them to show sympathy, though there are some cases where it requires an effort. That effort is always worth while, economically.

A most valuable rule of conduct is, when parting with a patient, always to have your last words refer to his physical condition. By so doing you leave in his mind as a last impression, your professional solicitude for his welfare. A very successful physician once ascribed a large part of his success to a rigid observance of this rule.

Of course humbug is of great use economically

in the practice of medicine. Quacks use it freely and make fortunes out of it. But the righteous physician can use it only when the interests of the patient demand it, as they often do.

If we wish to make money out of our patients we must get patients who have money and who pay their bills. In this city, where there is a superabundance of hospitals and dispensaries at which the poor can get treatment free, we are not philanthropically bound, as we would be under other circumstances, to treat private patients gratuitously. It is our privilege and duty to keep clear of deadheads. Of course we all have some private pensioners—with our dispositions it can not be avoided,—and occasionally bills turn out bad when not expected; but a careful regard for economics and a little business tact will do much to reduce the number of our bad bills.

This subject is vitally and inexhaustibly interesting to physicians, and it is not beneath our dignity to discuss it in our formal meetings. The medical profession needs bracing up badly on its economic side. Papers like this should be encouraged.

Dr. C. B. BACON: During my connection with the Department of Public Charities I have many times been astonished to find well-to-do persons seek hospital treatment and professional services free; putting themselves, in this regard, upon the same basis as city wards. Instances of this kind are not uncommon. It is the policy of the Department of Public Charities to carefully investigate the financial condition of each and every applicant for medical or surgical relief, advice or treatment. Where doubt exists, first treatment is afforded after the applicant signs a card, containing or representing the applicant's financial condition, etc. Forthwith a personal investigation is conducted, the result of such investigation being filed among the permanent records of the dispensary. Personally, I am of the opinion that the dispensaries connected with the hospitals under the Department of Public Charities may well be eliminated.

Those dispensaries which afford clinical material for teaching purposes can all well be attached to private hospitals and a minimum charge, at least, be made. The dispensary connected with the Cumberland Street Hospital afforded more treatments during the first month of operation than any subsequent month. This was due to the following facts: The public knew that a free dispensary had been established and so the dispensaries connected with near-by hospitals where a minimum charge for treatment and dressings

was made, were passed by. The decrease in subsequent months was largely due to the systematic method of investigation described. The procuring of something for nothing is degrading. In no other profession is so much given to charity as in the medical profession. The proper solution primarily, if not ultimately, rests with the medical profession.

Dr. WESTBROOK: We must look to the physician for the existing evils such as have been noted in the paper just read. I have recently seen a card which was evidently a ticket of membership to a benefit association which entitled the holder to treatment at reduced rates with certain physicians. The names of the physicians, their addresses and office hours were given. The list included specialists in all lines. I was surprised to note in the list the name of a well-known gynecologist of New York City; also the name of a well-known surgeon. These men were agreeing to treat the members of this association at fees one-half the regular price of other New York specialists.

Dr. CLOWMINTZER: The employes of the Brooklyn Rapid Transit have recently organized a benefit association, membership in which required the payment of a small annual fee and entitled the member to treatment by the association's physician without further expense. The physician is paid a small salary.

Regular meeting of the SECTION ON PEDIATRICS, held Friday evening, March 13, 1903.

Dr. WM. A. NORTHIDGE in the Chair.

Dr. HENRY N. READ read a paper entitled:

THE MOST IMPORTANT MANIFESTATION OF RHEUMATISM IN YOUNG CHILDREN.

Discussion.

Dr. BARTLEY: I have observed many similar cases. I recall one case where the only symptom of the rheumatic affection was the heart lesion and a slight sore throat. I have observed quite often the accompanying urticarial eruption in children. The parasitic theory does not appear to me to be well settled as yet.

Dr. HUTCHINSON: I simply desire to confirm the points brought out by the writer of the paper. I have almost a routine treatment, using anti-rheumatics, especially benzoate of soda, in almost

all my cases of tonsillitis, which I believe is rheumatic in origin.

DR. EDSON: I had hoped that chorea in its relation to rheumatism would be touched upon by the paper. I had a patient, a girl of ten, who had rheumatism with a cardiac involvement; next year she had rheumatism with a chorea. The following year she developed a rheumatic appendicitis with chorea. Dropsy followed and after very active treatment she recovered, but with the heart lesion left.

(On this point Dr. Bartley asked if the toxins present did not account for the chorea; to him it seemed so.)

DR. W. A. NORTHRIDGE: We are certainly much indebted to the author of the paper for his excellent article and especially for the warning it contains. The heart is affected quite as often as the joints are, and for this reason it should be watched early as a matter of routine. If this were more often done, much suffering would be avoided without the symptoms. Rest was and is a great aid in later life. The heart may even be affected factor in the management of these cases. I use a mustard plaster, put on over the heart daily for twenty minutes in every case of rheumatism.

DR. READ (in closing): I regard the specific organism theory, as the cause of rheumatism, proven; as to what the organism may be, is still unsettled.

BROOKLYN MEDICAL SOCIETY.

The eighty-first regular monthly meeting of the Brooklyn Medical Society was held on the evening of Friday, March 20, 1903.

The President, DR. ALGERNON T. BRISTOW, in the Chair.

The second of the series of preliminary exhibitions was given by Dr. Elias H. Bartley, "Demonstrations in Urinary Analysis" being his theme. He began by demonstrating the "Indications" in deep-seated suppurations and putrefactive conditions. He next explained the Diazo-reaction and its value in the early diagnosis of typhoid fever. He commented on the fact that it is of decided advantage to make the test on the first visit to a typhoid patient and that it is present in 80 per cent. of the cases.

The "Fermentation Tests" for sugar were explained.

The nitrogen constituents of the urine were next considered, by which we can study the metabolism going on in the urine. This being done by adding to the urine about 5 per cent. of HCl

and then adding phospho-tungstic acid with which one gets a heavy precipitate of the xanthin bodies; by the volume of which one gets an idea of unoxidized products. He also showed several methods by which we can estimate the amount of urea.

He then came to a consideration of the purin bodies which are uric acid plus the xanthin bases. Cryoscopy he considered of more importance than the estimation of uric acid and urea. It is a method which, by the means of physical force, we determine the freezing point of the urine and through this, estimate the secreting power of the kidney, its permeability or its impermeability. He showed the apparatus of Dr. Hall of Queens College and also one of his own which he considered a more compact modification. He also showed Beckman's apparatus.

CLINICAL SECTION.

Dr. William C. Braislin, Chairman:

Dr. Walter C. Wood presented an X-ray picture of Stone in a Healthy Kidney, and also presented the stone as it was removed by him. The patient on whom he operated had periodical pains in the right loin; localized in the same spot. There was no tumor or pus in the urine. Examined one year ago and found no tenderness over the kidney and made the probable diagnosis of stone. Dr. John A. Lee then took an X-ray photograph of the kidney and the location of the stone was definitely determined, with subsequent operation and removal. He desired to emphasize the case as being unique inasmuch as there was no pus in the urine and that the kidney was in a healthy condition.

Dr. William C. Braislin presented a specimen of a Teratoma of the Ear

He also showed the results of extraction of the ossicles, in a case on which he operated for chronic suppuration of the middle ear, the result of scarlet fever; the incus was necrotic and showed a mass of granulation tissue adherent to it.

Dr. A. T. Bristow presented a specimen of the Middle Third of the Clavicle which he had removed. The patient sustained a fracture last fall. He was operated on by another surgeon and the bones sutured; after that the patient had constant pain and his hand assumed a purplish hue: Dr. Bristow cut down on the clavicle and removed the middle third, and all the symptoms subsided with the removal of the pressure, the trouble being that the point of pressure was located just where the subclavian vein was attached.

PROGRAM.

"Some Recent Advances in Urinary Analysis,"
Dr. E. H. Bartley.

Discussed by Dr. G. W. Williams and by Dr.
John D. Sullivan.

BUSINESS MEETING.

Minutes of previous meeting read and adopted.

APPLICATIONS FOR MEMBERSHIP.

R. M. Elliott, L. I. State Hospital; U. of Buff.
1890.

C. Giovineo, 886 Flushing Ave.; L.I.C. H., '98.
William F. Campbell, 86 Greene Ave.; L. I.
C. H., '92.

Martin L. Bodkin, 290 Clinton Ave.; P. & S.,
'94.

William E. Butler, 113 Halsey St.; L. I. C.
H., '90.

J. P. Warbasse, 68 Greene Ave.; P. & S., '89.
S. C. Pettit, Neck Road, Gravesend, L. I.; L.
I. C. H., '98.

E. M. Bullwinkle, 80 S. 9th St.; L. I. C. H.,
'98.

A. Hayman, 73 McKibben St.; U. N. Y., 1890.
The membership committee reported favorably
on the following gentlemen:

Dr. S. C. Blaisdell; Dr. Lewis Lanzer; Dr.
Homer V. Duggan; D. Chas. Tag, and Dr. S.
W. Bates.

Dr. James C. Kennedy, chairman of the dinner
committee, reported that the dinner for 1903
had been a great success. He asked that the
dinner committee be discharged. This was done
with the thanks of the Society.

Dr. Alfred Bell reported on the financial end
of the dinner, which was received and recorded.

A letter was received from Dr. Archibald Mur-
ray expressing his thanks to the Society for their
hospitality extended to him as their guest at the
banquet.

Adjournment and social session.

HUGH EDWARD ROGERS, M. D.,
Recording Secretary.

WRITTEN EXAMINATIONS FOR INTERNES.

AT THE METHODIST EPISCOPAL HOSPITAL, BROOK-
LYN, MARCH 28, 1903.

PHYSIOLOGY.

1. Describe the three most important functions
of the saliva.

2. What is the function of the lymph, and from
what fluid is the lymph derived?

PATHOLOGY.

1. Name the pathologic conditions found in
the gall bladder.

2. Give the differential diagnosis, as based on
an examination of the stomach contents, after
test-meal, of chronic gastritis, gastric ulcer and
gastric carcinoma. Describe the tests.

MATERIA MEDICA.

1. Give the therapy of trional.

2. What is the therapy of pilocarpine?

OBSTETRICS.

1. State the causes of delay in the first and
second stages of labor.

2. Give the treatment of puerperal eclampsia.

GENERAL MEDICINE.

1. What varieties of anemia are recognized?
State the symptoms of the pernicious form.

2. Describe the symptoms and treatment of
acute nephritis.

ANATOMY.

1. State the relations of the principal structures
passing under Poupart's ligament and in the pop-
liteal space.

2. What muscles are necessarily divided in an
interscapulothoracic amputation?

GENERAL SURGERY.

1. What are the symptoms, complications, and
treatment of fractures of the pelvis?

2. What are the symptoms and treatment of
abscess of the brain?

GENITO-URINARY SURGERY.

1. What are the effects of relaxation of the
pelvic floor in woman? How treated?

2. State the symptoms and treatment of
pyelitis.

The result of the examinations of the (Seney)
Methodist Episcopal Hospital of Brooklyn, held
March 28, 1903, with the standing of the com-
petitors, is as follows:

1. Durham, Roger, P. & S.

2. Stone, Cornell.

3. Brown, F. E., P. & S.

4. Wright, F. R., Cornell.

5. Tong, G. W., L. I.

6. Marks, S. B., P. & S.

The first three were chosen to fill the vacancies
occurring during the year. The next three being
chosen as alternates.

GLENTWORTH BUTLER, M.D.,
Chairman.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed **BROOKLYN MEDICAL JOURNAL**, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the **JOURNAL** containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the **JOURNAL** free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the **JOURNAL**.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, JUNE, 1903

BROOKLYN'S WATER SUPPLY.

A matter of interest to Brooklyn physicians is the opinion just rendered by the Commissioners of Water Supply, Gas and Electricity, that the water supply of this borough must, in the near future, be obtained from a source other than Long Island.

In looking for a source from which an additional supply of water for the Boroughs of Manhattan and the Bronx may be drawn, the commissioners have evidently come to the conclusion that the source, wherever it may finally be located, should be one capable of such vast resource that it will always furnish a permanent and abundant supply for the needs of this the greatest city on the American Continent. Every thoughtful physician and every good citizen will concur in the opinion that any new water system should be planned on a scale so great that all possible contingencies of the future shall be satisfied.

In the construction of the new system of water works, the connection of the water mains of Brooklyn with those of Manhattan by under-river pipes will be a comparatively insignificant detail.

As yet no decision has been reached as to whether the source of this necessarily great volume of water shall be the Hudson River, the Catskills or the Adirondacks. In a matter so vital to health as the water supply of the city the question of the primary cost of building conduits to a distant source should not be allowed to weigh in the balance against the more important considerations of purity and unlimited supply.

Pending the decision as to the source of the Greater New York water supply, extensions of the present Brooklyn supply on Long Island are planned. The present sources of the water supplied to Brooklyn include surface-collected waters controlled by dams and ponds, and also ground water supplies collected in systems of wells. In view of the rapid increase of the pop-

ulation of Long Island, the surface water sources (ponds, etc.), are becoming yearly more difficult to maintain. It is even now practically impossible to control the purity of surface waters collected into our ponds. These are fed by small streams, often after flowing through thickly settled communities; and in proportion as the population about these surface water sources grows does the danger of contamination of their waters increase.

It is questionable in the minds of many whether, even now, such sources should be utilized; as, for example, the much discussed Hempstead pond and other sites in the Counties of Queens and Nassau in the immediate neighborhood of large towns.

Sand-filtration of these waters would be possible of practical application, yet the cost of installing sand-filtration plants is not inconsiderable and constant expenditure is necessary to continue their successful operation.

Ground water collected into systems of wells has an advantage over the surface-collecting system in that the water which reaches the wells must of necessity have percolated through a considerable depth of soil, and in the process have become, as it were, self-filtered. Organic matter even of the most virulent kind percolates through unstratified soil at a very slow rate. On soil such as that of which Long Island is composed, by keeping the adjacent surface for but a short distance about the wells free from organic materials, the purity of the well water can be absolutely controlled.

This system is capable of almost indefinite extension even in the vicinity of towns. This method of collecting water for water supply is the one in operation for the Flatbush district, and this particular supply, in spite of a rapidly growing population in the immediate vicinity of the wells, remains the purest in the Borough.

Some of the highest authorities have recommended the use of subsoil water collected by means of wells as the very purest available. About fifty cities and towns of the State of Massachusetts are supplied by this method exclusively. Newton, Massachusetts, for example, has a system of galleried wells extending three-quarters of a mile along the river from which 2,000,000 gallons of water are pumped daily.

A modification of this system is at present under way for furnishing an additional supply of water for the pressing needs of this Borough. Contracts are now being advertised for what are called "infiltration galleries." These are com-

posed of systems of pipes, with open joints, buried at a depth of several feet below the average level of the subsoil water and covered with broken stone or coarse gravel. The system will extend for a distance of about three miles within the limits of Nassau County; the direction of the system being carried at right angles to the direction of the flow of the subsoil water.

It will thus tap an abundant supply of water which has been thoroughly filtered by the natural process of percolation through a number of feet of earth. This supply will be emptied into the conduits by which the city is at present supplied. One advantage of this plan is that an added supply becomes immediately available. Even during the actual construction of the plant, in fact almost from the time that excavation is begun, an addition to the present supply will ensue, since the water which fills the trenches during the course of construction will be turned directly into the conduits.

Neither the members of the commission nor the engineers seem to anticipate any ill effects from this method, as, for example, an increase of typhoid fever. Yet in view of the fact that such a result is possible, it seems a prudent measure to advise the boiling of water used for drinking purposes during the coming summer, when the process of constructing this plant will be in operation.

OBITUARY.

JOHN JAY CONWAY, A.M., M.D.

Dr. Conway was born in Brooklyn April 16, 1859. His father was John Conway and his mother Honora G. Laughlin.

Dr. Conway was educated at St. Frances College and Mt. St. Mary's College, graduating A.B. in 1878 and receiving the degree of A.M. in 1885. The study of medicine under the direction of Drs. Henry J. McManus and Edward J. Harvey followed, graduating from the Long Island College Hospital in the class of 1880. During the following year he was interne in the Brooklyn City Hospital. In 1881 he began the practice of medicine in this city, which he continued until his death, February 13, 1903. From 1882 until 1890 he was President of the staff Physician to the Department of Women and Children in the Atlantic Avenue Dispensary. For a number of years he was Assistant Surgeon of the Manhattan Railway Co. Dr. Conway was a member of The Medical Society County of Kings from 1901

to 1903, and during the same time a member of The Associated Physicians of Long Island. The doctor was unmarried.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

THOMAS ENNIS M'CARTY, M.D.

Dr. McCarty was born in the City of Brooklyn on November 6, 1875. His parents were Thomas Ennis McCarty and Mary P. Mulligan. He received his education in Public School No. 15, at St. Francis Xavier College and in the German-American Academy of Brooklyn. He studied medicine under the direction of Alex. J. Rooney,



THOMAS ENNIS M'CARTY.

M.D., graduating from the Long Island College Hospital in the class of 1898. He served as interne in St. Mary's General Hospital during the years 1898-99 and during the following few years was interne in St. Mary's Maternity. His term ended on October 1, 1901, and on October 3, 1901, he died. He was a member of St. Mary's Alumni Association and the Medical Society, County of Kings, from 1899 to 1901.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

EUGENE EARL WOOLWORTH, A.M., M.D.

Dr. Woolworth was but five years in active practice when he met with an accident on January 21, 1903, which in a few weeks terminated his life.

He was born on December 15, 1872, at Lyonsdale, New York. His parents were Eugene B. Woolworth and Mary Emily Mills. His marriage with Miss Beatrice Esmond of Brooklyn took place on May 7, 1902.

Dr. Woolworth was educated at Clinton Grammar School and Hamilton College, receiving the degree of A.B. in the Class of 1893, being the salutatorian of his class. His medical education was conducted at the University of the City of New York, graduating M.D. in 1897. During the years 1897 and '98 he served as interne in the City Hospital on Blackwell's Island.

He was connected with the Alumni Association of the City Hospital. The Kings County Medical Association, and from 1899-'03, with The Medical Society County of Kings. In his social connection he was a member of Alpha Delta Phi and Phi Beta Kappa, Greek letter societies of Hamilton College. He was also a member of De Witt Clinton Council No. 419, R.A., and the University Club of Brooklyn, N. Y. Dr. Woolworth died February 5, 1903.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

Dr. Palmer Townsend announces the removal of his office to 588 Jefferson avenue.

Dr. Walter Truslow announces the removal of his office to 142 Clinton street.

Dr. Henry N. Read announces his removal to 228 Clinton street.

Dr. Daniel A. Fuller announces the removal of his office to 170 Clinton street.

Dr. H. Arrowsmith announces his removal to 170 Clinton street.

Dr. Stephen L. Taylor announces the removal of his office to 644 St. Marks avenue.

Dr. F. P. Jenks announces the removal of his office to 427A Eighth street.

Dr. Dexter A. Ashley announces the removal of his office to 337 Lexington avenue. Dr. Ashley will hereafter devote himself exclusively to orthopedic surgery.

Dr. Bernhard Stern, of 633 East 28th street, Vanderveer Park, announces the removal of his office and residence to 2604 Avenue F, corner Kenilworth Place, in the South Midwood section of Flatbush.

Dr. and Mrs. Frank E. West contemplate a trip abroad this Spring and Summer.

Dr. Wm. Browning read a paper on Diseases of the Sacro-lumbar Joint (Spondylolisthesis), at the Spring meeting of the Suffolk County Medical Society, at Riverhead, April 30th.

Dr. Russell S. Fowler has been appointed full attending surgeon to the German Hospital.

A change has been made in scope of the Central Islip State Hospital, it having been disconnected from the Manhattan Hospital. The Hospital at Central Islip and the one at King's Park will be those at which all cases from Brooklyn will hereafter be received.

The National Association of Medical Librarians met at the Library of the Medical Society of the County of Kings, May 16th. Dr. Osler of Baltimore presided.

The first annual dinner of the St. John's Hospital Alumni Association was held at the University Club, 435 Clinton avenue, May 6th.

The Alumnae Association of the Long Island College Hospital Training School for Nurses announces the formation of a Registry and Club, at 128 Pacific street, where physicians and the public can be promptly supplied with nurses exclusively from its school.

At the last regular meeting of the Brooklyn Gynecological Society, Dr. Edward J. Ill, of Newark, N. J., was the guest of the evening, reading a paper on the treatment of retro- and lateral deviations of the uterus. His somewhat unusual and radical method of treatment evoked a spirited discussion. Following the scientific session, the Society adjourned to the Union League Club, where a collation was served, and at which Dr. Frank Baldwin, President of the Society, presided.

The following clipping from the *Brooklyn Times* of May 5th is of interest:

"Nicola D'Amato, of 637 President street, pleaded guilty in the Court of Special Sessions, late yesterday afternoon, to the charge of violating the health laws, in practising medicine and

surgery without a license, and was fined \$100, which he paid. The complainant was Dr. Sylvester J. Byrne, an inspector attached to the local Board of Health, who based his charge on an affidavit of Filmenia D'Antonio, of 146 McKibben street. The latter claims that she submitted to an examination by the defendant, at her home, on January 24 last, and that D'Amato called again the following day and performed an operation upon her. She paid him \$12 on account, she says, and was to pay him \$20 more on her complete recovery. She grew gradually worse, however, and on February 25 called in another physician. The accused made no defense but paid the fine."

Dr. George L. Peabody, who has resigned the chair of materia medica in the College of Physicians and Surgeons, Columbia University, received a handsome silver loving cup from the student body recently as a mark of their affection and respect. A. H. Auchincloss of the second-year class made the speech of presentation. Dr. Peabody in response expressed the hope that his successor might receive the same deferential regard and maintain the same friendly relations that he himself had experienced during a professorship of seventeen years. The cup is about 18 inches high and vase-like in form. It cost about \$100.

Dr. Christian A. Herter, now of Bellevue, will take the chair left vacant by Dr. Peabody at the opening of the fall term.

It will be of interest to the profession to know that at the recent convention of the American Medical Association, at New Orleans. Dr. Billings, the president of the Association in his address to the Convention spoke largely on the over-supply of medical men, which he attributed to the excess of medical colleges. The country needed about 2,500 medical graduates annually, he said, and there were graduated 10,000 to 12,500. He wanted the number of medical colleges reduced to 25 or 30, and thought that this work could be best accomplished by the medical departments of the State universities.

The most important action of the American Medical Association at its recent convention was the adoption of a standard of medical ethics. There has been no change in the code since 1847. Summarizing this code of ethics, it defines the duties of physicians to each other; the duties of physicians to their patients; professional service of physicians to each other; the duties of physicians in regard to consultations; the duties of physicians in case of interference; and differences

between physicians' compensation and duties of the profession to the public.

Following are the officers for 1903-4, elected by the American Medical Association: President, Dr. John H. Musser, Philadelphia; vice-presidents, Dr. G. C. Savage, Tennessee; Dr. J. A. Done Dyer, New Orleans; Dr. C. I. Hall, Missouri; Dr. G. F. Jenkins, Iowa; treasurer, Dr. Henry H. Newman; secretary, George W. Simmons, Chicago. Drs. W. H. Welch of Maryland, Myles F. Porter of Fort Wayne, Ind., and M. L. Harris of Chicago were elected on the board of trustees.

The sixth triennial session of the Congress of American Physicians and Surgeons was held in Washington, D. C., May 12. The Congress is composed of sixty constituent societies of medical specialists of this country. Over 800 delegates were present, among them some of the foremost medical men of the United States. Papers were read by Dr. E. L. Opie of Baltimore, Prof. R. H. Chittenden of New Haven, Conn.; Dr. Simon Plexner of Philadelphia, Dr. Reginald H. Fitz of Boston, Prof. von Mikulicz-Radecki of Breslau, Germany, and Dr. Roswell Park of Buffalo.

Anent this Congress, the daily press is circulating reports that there is a movement all over the country among physicians to attack Dr. Adolph Lorenz and his methods before the Orthopedic Surgeons' Association. The attacks are to come from orthopedists who claim that Lorenz used needless severity and unnecessary force in his operations. It is further claimed that paralysis of the quadriceps extensor femoris followed some of the operations. Dr. Lorenz has an ardent supporter in Dr. Newton M. Shaffer, of Manhattan. The majority of physicians present at the Congress has signified its intention to stand by Dr. Lorenz and prevent any professional assault upon his methods.

Dr. Roland G. Curtin, of Philadelphia, read a most interesting paper before the American Academy of Medicine at its annual convention in Washington May 12th. His essay dealt with the question of the decrease in the birth rate and showed how the modern physician by high charges, expensive nurses, extensive outfits and by discouraging advice can contribute an influence which will decrease the birth rate.

Dr. Joseph H. Raymond, Borough Health Commissioner, thinks that comparatively few physicians are aware of the complications of contagious diseases. He therefore tabulates the sta-

tistics of the Contagious Disease Hospital for the week ending April 18, 1903. On that date there were in the hospital the following 71 cases, 15 of which showed complications:

Diphtheria	18
Scarlet Fever	19
Measles	6
Varicella	7
Whooping-cough	6
Diphtheria and scarlet fever.....	4
Diphtheria and whooping-cough.....	1
Scarlet fever and measles.....	3
Scarlet fever and varicella.....	1
Scarlet fever and whooping-cough.....	3
Measles and whooping-cough.....	1
Whooping-cough and varicella.....	2
Total patients	71

Dr. Daniel Lewis, State Commissioner of Health, has announced the appointment of Dr. George H. Fox, professor of dermatology in the medical department of Columbia University, New York City, as Consulting Dermatologist for the State Department of Health.

The death is noted of Dr. John A. Van Harlingen, 195A Cumberland Street, P. and S., 1869.

On April 3, Dr. John O. Polak, of 287 Clinton Avenue, was elected to the Chair of Obstetrics, New York Postgraduate Medical School. Dr. Polak had previously held an associate Professorship of Obstetrics in this school for five years.

The annual commencement of the Long Island College Hospital occurred May 12, at the Academy of Music. Forty-one graduates received diplomas. The address to the graduating class was given by the Rev. S. Parker Cadman, pastor of the Central Congregational Church, Brooklyn. Frederick Tilney, B. A. (Yale), was the valedictorian.

The following medals and prizes were awarded:

The Dudley medal, George William Tong, A. B.

The Dudley memorial medal, George William Tong, A. B.

The Skene memorial prize, William Fletcher Walling.

The Corydon L. Ford prize, Jacques C. Rushmore, A. B.

The Chauncey L. Mitchell prize, Horace Greeley.

The anatomical prize to Frederick Tilney, A. B., and J. C. Rushmore, A. B.

Alternates, John Hathaway Long and William Fletcher Walling.

It was announced that Mr. Tong was the first man in the history of the college to capture both the Dudley and the Dudley memorial medals.

The following appointments were made to the house staff: Jacques Cortelyou Rushmore, A. B.; Henry Blodgett McIntyre, Orville Nelson Lewis, William Joseph Ivory; alternates, John F. Crawford, Ph.G.; Frank A. Johnston, Joseph A. Brady.

CORRECTION.

In the report of the Treasurer for the Dr. John Lloyd Zabriskie Memorial, on page 9 of the Supplement to the BROOKLYN MEDICAL JOURNAL, under the head of Disbursements, the reading should be changed to the following:

Books, periodicals and binding.....	\$63.79
On hand Dec. 31, 1902:	
Bond and mortgage.....	2 000.00
Balance on deposit.....	119.93

AN ESSAY UPON THE GENERAL PRINCIPLES OF PREVENTIVE MEDICINE,

BY W. WAYNE BABCOCK, M.D.,

Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia; Pathologist Kensington Hospital; Assistant Pathologist Philadelphia Hospital, etc.

Awarded the first prize of one thousand dollars in the competition instituted by The Maltine Company.

(Continued from p. 255.)

Manson was the first to show that the mosquito acts as the intermediate host of the parasite of *elephantiasis*. In this disease the adult worm (*Filaria sanguinis hominis*) that remains in the lymph vessels gives birth to broods of embryos that are disseminated in the lymph stream and finally enter the blood. They occur in abundance in the blood when the patient is asleep and apparently retire to the lymphatics during his hours of activity. The mosquito, in biting, seems to entangle these embryos in its proboscis, and to draw them into its stomach, where the embryos lose their hyaline envelopes, penetrate the gastric walls, and enter the muscles of the thorax. Here they remain until the seventeenth day, when they collect in the connective tissue of the anterior

part of the thorax, and by the twentieth day are found to have penetrated the neck, the back and the head of the insect. It seems evident that, if the mosquito bites after this time, the filaria that have entered the veno-salivary duct may be introduced into the tissues of the individual bitten. It is supposed that in the skin the embryos reach adult development, then burrow, enter the lymphatics, and give rise to broods of embryos, thus completing the life-cycle.

Each of these three diseases is transmitted by its particular mosquito: malaria by certain *Anopheles*, yellow fever by *Stegomyia fasciata*, and the filaria by a *Culex*, and possibly by *Anopheles*. Experiments indicate that *Anopheles* will not transmit yellow fever, nor *Culex*, malaria. Recently Graham has apparently shown that *dengue* likewise depends upon a hematozoon carried and inoculated by mosquitoes, and the finding of immature flukes in a variety of *Culex* is also reported.

In 1890 Grassi found that the embryo of *Filaria recondita* (Hematozoon of Lewis), which closely resembles *Filaria sanguinis hominis*, undergoes a metamorphosis in the dog, cat, and man-fleas (*Pulex irritans*) yet he failed to infect animals from these fleas.

In the case of *Texas fever* of cattle, Theobald Smith has shown a remarkable phase, in the role of cattle ticks as intermediate hosts. The casual parasite of this disease is a very minute hematozoon (*Pyrosoma bigemum*). The cattle tick (*Boophilus bovis*), having filled with blood, drops from the animal, and a few days later lays her eggs. After twenty to forty-five days, the embryos escape from the egg and attach themselves to cattle. Two weeks later the young tick is sexually mature, becomes fertilized in twenty-one to twenty-three days, and it, also, drops to the ground and in turn lays eggs. A tick generation has an age, throughout, of from forty-one to sixty-eight days. The experiments of Smith and Kilburn, which have since been confirmed by Koch, show that the embryos developed from eggs laid by a tick that had fallen from a diseased animal are capable of infecting other animals. There is here, therefore, a remarkable transmission of the parasite of the disease from the parent tick to its ovum. There is no evidence that this occurs in the mosquitoes that serve as hosts for the parasite of yellow fever or malaria.

Vicente believes that a louse (*Aspidiotous neri*) infesting the oleander to be a vehicle for the transmission of malaria. It is claimed that the hematozoon has been found in these lice but this observation requires confirmation.

It is yet to be determined in how many diseases insects serve as intermediate hosts, or the number of different hosts that a single pathogenic organism may have.

RODENTA.

Rats and mice may suffer from a variety of parasitic skin diseases transferable to man, in-

cluding *scabies* and forms of *tinea*. Their flesh may be infested by trichina, sarcosporidia or other parasites. Rats also are very susceptible to *bubonic plague*. These diseases may reach man through direct contact with the rodent or by the intermediate agency of fleas, cats, dogs or contaminated utensils or articles of food.

Of especial importance is the relation of rats to the spread of plague. Rats may contract plague from infected soil, from contaminated fleas, or from eating portions of the bodies of those dead of the disease. From the rat, the bacillus may be carried to man by fleas. Loir concluded that the immunity enjoyed by oil-carriers in plague epidemics was a result of the flea's aversion to oil. It is possible that in rather rare instances the infected rodents may directly inoculate man through their bite; thus, Bell relates the case of an adult Chinaman who developed plague three days after having been bitten in the thumb by a rat.

Rats are said to be so susceptible to plague that they may be infected by merely touching their nasal mucosa with a smooth glass rod that has previously been touched to a culture of the *Bacillus pestis*. The death of many rats in a neighborhood or on shipboard may be the first evidence of the presence of plague. Thus, in Santos and other cities the appearance of plague was preceded by a large mortality among the rats.

DOMESTIC ANIMALS.

Parasites may be conveyed from domestic animals to man in one of the following ways:

1. *Direct Contact*.—Many parasitic skin diseases occur in the dog, cat, and horse, and are transmissible by contact to man. These include forms of ringworm or *tinea*, caused by *Trichophyton tonsurans*; *favus*, produced by *Achorion schoenleinii*; and *pityriasis versicolor*, resulting from the action of *Microsporon furfur*. *Scabies* has been observed upon the nose of dogs. If the roundworm of the dog (*Ascaris suilla*) be, as some suppose, identical with *Ascaris lumbricoides*, the discharges from the dog may be a source of this infection in man, as they are known to be the source of infection by *Taenia echinococcus*.

2. *Inoculation*.—The most serious disease inoculated by bites of domestic animals is *rabies*. This disease occurs most frequently in dogs, but may affect cats, horses, cows and other domestic as well as wild animals. The infectious principle is present in the saliva of the rabid animal. Inoculation may result from the entrance to the body of fluids or discharges from animals suffering from *tetanus*, *anthrax*, *glanders*, *actinomycosis* or *foot-and-mouth disease*. In December, 1901, a number of deaths occurred in St. Louis from *tetanus* following the subcutaneous injection of diphtheria antitoxin secured from a horse afterward found to be affected by this disease. The prevalence of tetanus after vaccination dur-

ing the winter of 1901-'02 in a number of North American cities has suggested that the infection may be carried in vaccine matter. Suggestive evidence is found in the statistical studies of Mc Farland and the reported finding of tetanus bacilli in vaccine. Tetanus bacilli are frequently found about stables and cattle, although less susceptible than horses, are not immune. It is obvious that the production of antitoxins and vaccine should be under expert bacteriologic control. Operative tetanus has been attributed to the use of kangaroo-tendon, in reality horse-tendon, and to the injection of solutions of contaminated gelatin. Punctures by splinters, nails or other objects about stables are often followed by lock-jaw, these objects apparently being contaminated by the dejections of horses.

3. *Aerial Infection*.—In coughing and snorting, horses suffering from *glanders* throw into the air liquid particles laden with *Bacillus mallei*. These particles may be inhaled by persons or by lower animals, may fall upon wounds, or contaminate various inanimate objects in the immediate neighborhood. In this manner, or by direct contact with the discharges from the nares or from farcybuds, this virulent disease is spread. In a similar manner organisms of *actinomycosis*, *tuberculosis* and *aspergillosis* may be conveyed from cattle to other cattle, or to man. *Psittacosis*, a pulmonary disease of parrots, may likewise be transmitted to the human family, producing a serious pneumonic disorder. From sick parrots imported from South America to France, seventy persons in Paris became ill with psittacosis and thirty-four died.

The evidence that cats, dogs, horses or fowls may contract diphtheria or scarlet fever does not seem conclusive. It is known, however, that dogs, cows and other animals may acquire tuberculosis.

4. *Indirect Infection*.—Parasites may be carried from domestic animals to man by fleas, lice, flies or other insects. The casual agent of many infections may be carried on the fur, feet or in the mouths of healthy animals, especially those serving as pets. As will later be considered, foods of animal derivation are responsible for a number of diseases.

Prophylaxis.—Animals suffering from diseases dangerous in man, such as plague, anthrax, glanders, psittacosis and actinomycosis should promptly be killed, the bodies burned, quicklived or buried deeply. Animals with advanced tuberculosis should be destroyed, cattle with early lesions and without cough may be segregated and used only for breeding purposes. Rats should be excluded in the presence of contagious disease. Domestic animals suffering from uncinaria or other parasitic worms dangerous to man should be either killed or segregated and treated with thymol or other efficient anthelmintic. Care should be taken that their discharges do not disseminate the parasites. Animals afflicted with vermin, tinea, scabies, or other contagious skin disorders should be treated with an appropriate parasiticide.

CHAPTER XI.

THE DIFFUSION OF PARASITES BY FOOD.

Milk.

In milk at a sufficient temperature most bacteria undergo rapid multiplication. Klein even asserts that the tubercle bacillus increases in virulence when grown in milk. It is, therefore, evident that milk is a most important medium for the transmission of infectious disease. It may be contaminated before or after leaving the cow.

Contamination in the Udder.

From the presence of local disease in the udder various bacteria and purulent products may pass directly into the milk. Stokes in investigating an epidemic of gastro-intestinal disorder in Baltimore found that the thick cream-like layer of the milk used consisted largely of pus. Disease may result from the use of milk from cows infected with anthrax, pleuro pneumonia, rinderpest, foot and mouth diseases, mastitis and other diseases. In a number of infectious diseases of cows it has been shown that the bacteria may be eliminated through the mammary gland.

Tuberculosis.—It is generally admitted that cows showing emaciation, or having diseased udders, in association with tuberculosis, are especially liable to give milk containing tubercle bacilli. The danger from cows free from udder disease and emaciation, and with a stage of tuberculosis only recognizable by the tuberculin test, is less marked but distinct. Ostertag found no tubercle bacilli in the milk of 49 cows reacting to tuberculin but without other symptom of disease. He advises a fortnightly examination of such cows and the weeding out of the emaciated and those with diseased udders, in whose milk he usually found tubercle bacilli. As it is difficult to detect emaciation and udder disease in its early stages, the risk of following out this advice is evident. Upon the other hand, there is little doubt as to the general safety of milk from cows that do not respond to the tuberculin test. Lydia Rabinowitsch found no tubercle bacilli in the mixed milk from large herds of such cattle. In herds guarded by mere clinical observation, virulent tubercle bacilli were found in a number of instances. MacFadyen estimates that 30 per cent. of the cattle in Great Britain are tuberculous. In various tests over the United States from 2.2 to 50 per cent. of the cows were found to react to the tuberculin test. Milk, therefore, should only be taken from cows in good health that do not react to tuberculin. This injunction is based upon the evidence accepted by nearly all bacteriologists but Koch, that tubercle bacilli from cattle are infectious in man. As this important point has been the subject of controversy and much experimentation, the grounds for believing that bovine tubercle bacilli are infectious to man may briefly be given. (1) In nearly all of the lower animals, including hogs and monkeys, the bovine tubercle is more virulent than the avian or human bacillus. (2) Tubercle bacilli from tuberculous human beings may

cause extensive disease in cattle as shown by Ravenel. (3) Of children in hospitals using cow's milk as food, not less than one-third of the deaths may occur from tuberculosis and over one-third of these bodies may reveal a primary intestinal infection, as shown by the statistics of Still and others. (4) The relatively greater frequency of pulmonary over intestinal tuberculosis does not prove that the predominant mode of infection was by inhalation. Of four animals that developed extensive tuberculous lesions from eating food containing tubercle bacilli, Ravenel found intestinal lesions in but one. (5) A number of cases have been collected in which the direct tubercular infection of man from the diseased bodies of cattle occurred. Besides this there are a multitude of clinical observations in which tuberculosis seemed to result from the drinking of milk from diseased cows.

In the light of the evidence here briefly summarized, tubercle bacilli from cattle should be dreaded as especially virulent and the greatest care should be taken to prevent their entrance into the body.

Contamination from Handling.

Milk may be contaminated by particles of dirt, manure, epithelial scales or wound secretions from the cow's body, from dust in the air or infectious particles on the hands or clothing of the milker. Ravenel has shown that tuberculous cows may expel bits of mucus containing virulent bacilli when coughing. Similarly, persons with pulmonary or naso-pharyngeal affections may in coughing, sneezing or talking contaminate the milk. Flies and other insects may carry contamination, and polluted water used in washing utensils or added as an adulterant to milk may render the milk infectious. Epidemics of diphtheria, scarlatina, typhoid fever, cholera and other diseases apparently have been caused in one of these ways. Kober in a study of 195 epidemics of typhoid fever traceable to the milk supply, found that the disease was present at the farm or dairy in 148. Of 99 scarlet fever epidemics the malady was present at the special dairy or farm in 68. In 6 instances persons associated with the dairy lodged or visited in houses in which scarlet fever existed. In 17 instances the infection was ascribed to persons handling the milk while suffering with or convalescent from the disease, and in at least 10, to people who acted as nurses while handling the milk. In one case cans had been wiped with contaminated cloth and in two, bottles or cans had been in houses where infection was present. Kober's studies of 36 outbreaks of diphtheria ascribed to polluted milk, showed 13 cases in which the disease existed at the dairy, and three in which employees handled the milk while ill with the disease. Two-hundred and forty-three of these 330 epidemics were recorded by English authors an excess ascribed to the fact that raw milk is usually employed in England and America, while cooked milk is in vogue upon the Continent.

The gastro-intestinal disorders of infants, prevalent during the summer are considered to be gastro-intestinal infections usually derived from milk. The milk in these instances may contain specific microorganisms or be harmful from the enormous number of bacteria present, a result of imperfect refrigeration or lack of precaution in handling the liquid. The milk dispensed in large cities during the summer not infrequently has a bacterial population greater than that of sewage. Thus, it is not unusual to find over 2,000,000 bacteria to each cubic centimeter of milk.

The following table, from the studies of Wm. H. Park, shows the influence of temperature upon the bacterial purity of milk and also the relation of sanitary precautions in collecting milk to its purity. The milk marked No. 1 was collected under best conditions and contained when temperatures and the number of the contained bacteria in each cubic centimeter counted at the end of 24, 48, 96 and 168 hours.

INFLUENCE OF TEMPERATURE UPON THE BACTERIAL PURITY OF MILK.

		After 24 Hours.	After 48 Hours.	After 96 Hours.	After 168 Hours.
23° F.	1	2,400	2,100	1,850	1,400
	2	30,000	27,000	24,000	19,000
46° F.	1	3,100	12,000	1,480,000	
	2	42,000	360,000	12,200,000	
68° F.	1	450,000	25,000,000,000		
	2	4,000,000	250,000,000,000		

That milk from a mixed herd may contain fewer bacteria than that from individual cows is shown in the following table:

BACTERIAL PURITY OF MILK FROM MIXED HERDS AND FROM INDIVIDUAL COWS.—(Park.)

Number of bacteria in each 1 c.c.: A referring to the average number of bacteria from individual cows; B to the average number of bacteria in mixed milk from the entire herd.

	5 Hours After Milking.	24 Hours.	48 Hours.	72 Hours, Not entire.
A.	6,000	1,938	17,816	
B.	4,333	2,766	10,583	329,000

Milk products, such as cream, butter, cheese, ice-cream, and "hokey-pokey," may convey the same germs as those present in the original milk, plus those that may gain access through uncleanly manipulations.

Prophylaxis

The bacterial contamination of milk results from the uncleanly condition of the cow's body, the milker's hands or body, the air, or the containers. To avoid these sources of contamination, manure should be removed promptly, and care be taken that the cow's bedding is clean, and that the udder is cleansed with a clean damp cloth before each milking. The dairymen should be free from tuberculosis or other infectious diseases, nor should they associate with people suffering from infections. The milker's clothes should be clean and their hands well washed before each milking, and milk should not be used to lubricate the teats. They should avoid coughing or sneezing over the milk. No sweeping

should be permitted about the time of milking. The use of impervious floors that are kept clean by washing rather than sweeping is advisable. All milk receptacles should be well cleansed and scalded before use, and the milk-pail should have an opening not over six inches in diameter, protected by fine gauze. After collection, the milk should promptly be cooled to at least 46° F., which temperature should not be exceeded. It should not contain over 12,000 bacteria per cubic centimeter in warm weather, or 5,000 in cold weather, and at the end of thirty-six hours the number of bacteria should be less than 50,000 per cubic centimeter; or if the milk has been kept at a temperature not exceeding 40° F., less than the original number of bacteria should be present. If the milk be dispensed in glass jars, these should be sterilized before each filling and not collected, filled and distributed *en route*.

In Philadelphia certified milk is sold at a moderate advance over the usual charges. The purity of this milk is determined through arbitrary monthly inspections, by a committee appointed by the Philadelphia Pediatric Society. Any dairy capable of fulfilling the necessary requirements may supply milk under the certification of the Society. Bacteriologic and sanitary inspections of this character, not only render available a particularly wholesome milk, but they tend to incite dairymen to build better stables, to take greater care of cows and to observe stricter rules in handling milk. Thus, an influence tending to better the milk supply in general is produced. Often, however, and especially if infants be concerned, the consumer cannot depend altogether upon precautions which may be vitiated by the carelessness of a single person among the many engaged in handling milk, and should render the food non-infectious before its use. This may be done by pasteurizing or sterilizing. If pasteurizing is attempted, it should not be carried out in the makeshift ways often recommended, such as those in which bottles of milk are placed in pails of boiling water and the pail and its contents permitted to cool. Such measures are uncertain, and should be replaced by methods or the use of forms of apparatus that are known positively to maintain the temperature of the milk between 70° and 80° C. (158° and 176° F.) for thirty minutes. If such a measure is impracticable, milk should be boiled for five minutes, or sterilized by steam for at least fifteen minutes. That such high temperatures slightly impair the nutritive or digestive qualities of the food by altering the nucleo albumins may be true, yet it is best to insure safety against infection. In the home, careful refrigeration should be continued and all utensils that may come in contact with the milk carefully cleansed. Moreover, infant's food should not be warmed until immediately before use, for fear of favoring bacterial multiplication.

Meat.

Flesh containing encysted animal parasites is termed "measly." From the ingestion of im-

properly cooked or cured measly pork one may become infected with *trichinae*, the pork tapeworm (*Tania solium*), or, rarely, *sarcosporidiae*; from beef, beef tapeworm (*Tania mediocanellata*), anthrax, or tuberculosis. From eating certain European and Asiatic fish, the fish tapeworm (*Bothriocephalus latus*) may be acquired. All these parasites are destroyed by thorough cooking of the meat. The rule adopted in parts of Europe of permitting the flesh of animals with tuberculosis or certain other communicable diseases to be used, provided the lesions are local, should not be followed. The limitation of gross lesions to certain organs of the body does not prove that the causal organism is not diffused through the body. The flesh of animals dead of disease of any character should be condemned as food. In slaughtering and in the after handling of meats contamination by contact with inanimate objects, insects, the larger animals or man, may occur. Cooks, butchers and others that handle meats should be free from tuberculous or other infectious disorder. This applies with particular force should uncooked or underdone meats be used as food.

Vegetables.

Uncooked green vegetables may have animal or vegetable parasites deposited upon them from the soil, in fertilizers, in dust, or by contact with living or dead animals (including insects), or human beings. It is believed that the eggs of the common round- and pin-worms often gain entrance to the body upon improperly washed celery, lettuce, water-cress, or other greens.

Forms of the *Amoeba coli* may likewise be acquired. This form of infection is especially to be feared when gardens are sprinkled with fresh solutions of fecal matter. Manure from the lower animals may contain parasites pathogenic in man, and insects may deposit parasites upon plants. Grains and flour may contain the ova of flies or other insects, and if ingested without previous cooking, the larvæ developing within the alimentary canal may produce marked irritation. The presence of the larva of the common meal beetle (*Tenebrio obscurans*) in the intestines of a patient of J. J. Welsh was attributed to the use of gluten suppositories. It is supposed that the egg was present in the gluten flour.

Of the bacteria, members of the *colon group*, especially the *typhoid* bacillus, seem to be the organisms most frequently transmitted by vegetables. The prevalence of dysentery and other intestinal disorders in China and Japan has been attributed to the extensive use of night soil as a fertilizer.

The State Board of Health of Massachusetts apparently demonstrated that an outbreak of typhoid fever at the State Hospital for the Insane at North Hampton was spread by celery raised upon the premises in beds watered with filtered sewage. The disease occurred only in those who had eaten celery and the avoidance of this vegetable was effective in checking the

spread of the infection. Ferre has reported a similar outbreak that occurred in a girl's school at Jurancon, affecting only the boarders and not the day scholars, in which it was found that the vegetable garden from which the school was supplied was watered with the contents of a cess pool. The *tetanus bacillus* may thus be conveyed, but seems to be innocuous when swallowed.

Fruits and other vegetables may be contaminated by handling or by exposure to bacteria-laden dust. Fruit displayed for sale on street stands in the larger cities is a rendezvous for insects of the street; is polished by filthy hands upon filthier cloths or clothing; is often coated by a layer of the dust blown from the pavement that is polluted from horse-droppings and sputum, and otherwise is exposed to soiling. To contemplate the many patrons of these stands who escape disease is but to develop admiration for the high degree of insusceptibility of our genus, and the influence of sunlight, dessication and other natural disinfectants.

Rinsing in cold water or wiping with a damp cloth are untrustworthy methods of cleansing fruits and vegetables that are to be eaten uncooked. So far as possible the outer rind or cuticle should be discarded and not brought in contact with the mouth. It has been suggested that fruits be dipped in an antiseptic solution, such as one of tartaric acid or especially formaldehyde.

A sufficient superficial sterilization of fruits may be consummated by dipping them for from five to ten seconds in boiling water. Even grapes suffer little damage during this procedure.

CHAPTER XII.

THE DIFFUSION OF PARASITES BY SOCIAL INTERCOURSE.

SOCIAL INTERCOURSE.

Fomites.

The diffusion of disease is often attributed to *fomites*, or porous substances capable of retaining virus; including articles of wearing apparel, bed-clothing, fabrics of linen or cotton, leather goods and the like. The possibilities of infection through such contaminated articles has probably been much overrated, and we have little exact experimental evidence showing its precise importance. For example, *yellow fever* was considered, until recently, to be in large measure conveyed by fomites; but the recent experiments at Camp Lazear in Cuba show that this mode of infection is improbable. As a rule, porous substances do not retain living infectious bacteria for any considerable time, as their dryness leads to the death of the organisms. Shoemaker mentions an instance in which a sister acquired gonorrheal ophthalmia by wiping her face with the soiled handkerchief of her brother. Articles that have recently been contaminated by pathogenic discharges may be dangerous, especially when

brought in contact with open wounds. By violent agitation, as in sweeping, dusting or beating, infectious particles may be thrown from soiled fabrics into the air and may be injurious if inhaled. Fomites, at present, are thought to be an important means for the transmission of *scarlet fever*, *small-pox* and *measles*. Numerous instances are on record in which fabrics have apparently retained the virus of scarlet fever for months. It must be admitted, however, that although extremely probable, the evidence is largely clinical and for many diseases is without the proof of rigidly controlled experiment. Observations that seem equally conclusive were brought forward to prove the similar conveyance of yellow fever.

Domestic Articles.

Of the articles used in common by two or more persons, that may serve to diffuse infection we may cite tableware, toys, nipples of feeding bottles, tooth and hair brushes, sponges, lather brushes and razors, manicure instruments, ear spoons, syringes and similar utensils. In toilet rooms and from beds, the *pediculosis pubis* or *corporis* may be acquired. In dining it is important that those suffering from diseases communicable by saliva, such as syphilis, tuberculosis, diphtheria and scarlet fever have an individual tray reserved for their own use and kept apart from the service of other members of the household. Such utensils should be immersed in boiling water each time after they are used. For the cleansing of ordinary tableware, the method of the careful housewife, of thorough washing in hot, very soapy water and rinsing in scalding water, does not require improvement. Mothers having tuberculosis should take great care that articles used by children are not soiled by contact with their mouths or saliva. The practice of wetting the finger with saliva to facilitate the handling of various articles is reprehensible. Tubercle bacilli have been found in the dregs of the communion cup and the glasses and cups provided at public fountains and drinking stands may be contaminated.

Surgical and Dental Instruments.—Improperly disinfected instruments may transmit organisms of *erysipelas*, and *suppurative* processes, of *syphilis*, *gonorrhea*, *scarlet fever*, *diphtheria*, *tuberculosis* and *actinomycosis*. It is difficult to estimate the frequency of infection by this means. In a number of instances syphilitic and other serious infections have directly been traced to septic instruments used in the filling or extracting of teeth. Physicians have caused serious infection by disregarding the rules of aseptic surgery in the use of scalpels, forceps, urethral, or eustachian catheters, tongue depressors, thermometers and other instruments. Mention may be made of the serious inoculation of the conjunctiva or cornea through the use of instruments contaminated by vaccine. The carelessness or ignorance that permits these infections by physicians is inexcusable and the person responsible

is liable to civil action. Instruments are readily sterilized by immersion in boiling water for five or ten minutes. Thermometers may be sterilized by washing and then immersing in a solution of formalin or mercuric chlorid. It is desirable that the surface of the thermometer be smooth, and free from the depressions resulting from graduation or the maker's stamp.

Chiropodists and *manicures* should carefully sterilize their instruments after each use. The spread of sycosis, other skin diseases and more serious infections by *barbers* is easily prevented by the sterilization of razors, brushes, combs and cups after each use, the avoidance of the common sponge, puff-ball or stick of styptic. It is satisfactory to note the establishment of antiseptic barber shops in many parts of the United States.

Mail Matter.—The conveyance of pathogenic organisms by the postal service is evidently rare. The dryness of the paper sent by mail is unfavorable to the perpetuation of bacterial life. It is difficult to prove that cases of reported infection occurred in this way, although instances similar to the following one, related by Gripat, are suggestive: A mother living at Angiers received from her sister-in-law, in a northern city, a letter in which the concluding sentence read, "I am writing, holding upon my knee my little girl, who has just developed measles." The sister-in-law at Angiers also happened to have her daughter upon her knee when she was reading the letter, and the little child seized the envelope, played with it, and carried it to her mouth. The letter was burned at once, but twelve days later the child developed an indubitable measles rash. At this time there was no other case of measles known to be in Angiers.

Letters may be *disinfected* without injury by means of formaldehyde gas, which readily penetrates envelopes. Most efficient is a chamber connected with an intermittently acting vacuum apparatus to facilitate the penetration of the formaldehyde. Dry heat, at a temperature of 160° C. (320° F.) also may be applied. More efficient is dry steam, provided care be taken to expose the mail to hot dry air, immediately following the steam, in order to prevent watery condensation.

Transportation.—The measures adopted to prevent the spread of disease during travel are usually imperfect. In the berths of sleeping-cars and boats one may come in close personal contact with the same utensils and bedding that but a few hours before were used by a consumptive or a victim of other infectious disorder. To prevent repeated use without washing it has been advised that only white blankets be furnished in such public conveyances. Attempts to disinfect sleeping cars with formaldehyde gas have given unsatisfactory experimental results. Exposed woodwork should be carefully washed and the bedding removed and sterilized after each trip; forms of apparatus using steam or formaldehyde being employed for this purpose. In railroad or street-cars vibration tends to keep the air constantly filled with dust from the floor

and other parts of the air. If the regulation about spitting is not enforced or if the car be soiled in other ways, it is likely that dry pulverized infectious material will be carried into the air, deposited on, or taken into, the bodies of the occupants of the car. The use in common of lavatories and drinking-cups should be supervised and measures taken to ensure the destruction of vermin. Purulent ophthalmia, tuberculosis, the acute exanthemata infectious, cutaneous disorders, and many other diseases may be acquired in public conveyances.

Commercial Intercourse.—The commercial relations existing between individuals, communities and countries may serve as an important means for the spread of infection. The regulation of the importation, inspection and disinfection of fabrics and food-stuffs is a part of State and municipal hygiene. Of especial importance is the conveyance of anthrax by hair or wool. Coin or paper money, checks, tickets, letters and the like, all may carry infection. Fortunately, textile fabrics, scrip, and coin may be effectually disinfected by formaldehyde or by steam.

Personal Contact.

Personal contact is responsible for many of the infections. A disease may be transmitted from a person who is ill or who has recently had the disease, or, at times, from one who has merely associated with the sick. Thus, *diphtheria* may be communicated from those who have the malady, from convalescents, and by association with apparently healthy members of the household. These healthy individuals may have virulent diphtheria bacilli in their throats and are as dangerous as a patient with diphtheria or a convalescent. It is important, therefore, to make cultures from the throats of all who have been exposed and to isolate, until proved harmless by bacteriologic test, persons in whose throats the Klobs-Löffler bacillus is found. This bacillus may remain for months in the mucous membrane of the nose, pharynx and larynx without any clinical sign of the disease developing.

In the statistics generally quoted, diphtheria bacilli were found in 18.8 per cent. of persons who had been exposed. Kober studied in Flugge's laboratory 128 healthy persons who had been in contact with cases of diphtheria, and 600 who were not known to have been so exposed. Of the former group 8 per cent. were found to have virulent diphtheria bacilli in their mouths or throats. Of the latter group, 15 or 2.5 per cent., showed the presence of the bacilli, as compared with 7 per cent. in other statistics. Further inquiry showed that 10 of the 15 could be considered to have been exposed directly or indirectly, thus reducing the proportion of unexposed individuals who carried the organism in their throats to 0.83 per cent. Besides, in the 15 cases of the second series, the bacilli were non-virulent in 10.

Although we have less definite knowledge in regard to many of the other infectious diseases, such as *scarlet fever*, *small-pox* and *typhus fever*,

the importance of isolating those who have had the disease, for a considerable period after their recovery, and of supervising the personal intercourse of others exposed, is obvious.

A lesion of the skin or mucous membrane may or may not be necessary to infection, but, as a rule, favors the invasion of a virus. The *itch mite*, for example, penetrates the unbroken skin, the *gonococcus* invades intact mucous membranes, while inoculation with *vaccinia* or the *syphilitic virus* is favored by local lesions, although often very small and superficial. The chancre of syphilis is chiefly found upon portions of the generative organs most exposed to abrasion during the sexual act; upon the lips it often occurs in the situation of a chronic fissure; upon the hands, at the site of a scratch or abrasion, as evidenced by the not infrequent infection of surgeons and obstetricians in this manner.

Sexual impurity is the chief factor in the spread of a number of the most virulent and widespread diseases. Besides syphilis, gonorrhea, and the chancroidal ulcer, it has been claimed—upon evidence, however, that is not entirely conclusive—that *leprosy*, *tuberculosis*, *elephantiasis*, and even *carcinoma* may similarly be conveyed.

No satisfactory method for the municipal *suppression* or *regulation of prostitution* has yet been devised. In the United States no city will tolerate open licensing and inspection of prostitutes. Although European statistics indicate that such methods may diminish the prevalence of venereal disorders, they cannot be entirely efficient, and are open to much criticism, apart from the moral responsibility placed upon the municipality. The infectious elements of syphilis or gonorrhea are with difficulty eradicated from a person involved, and gonorrhea may be transmitted by man or woman years after the original infection has subsided, and despite continued treatment.

The Committee of Seven on the Prophylaxis of Venereal disease in New York City, estimated that there was a venereal morbidity of 225,000 cases in that city alone during 1900. This committee advised educational measures, the treatment of the diseased in hospitals, the raising of the age of consent and the rigid prevention of proxenetism.

The one reliable defense against venereal infections is sexual purity, and to this end a higher moral education of the race is of first importance.

CHAPTER XIII.

THE INHIBITION OF THE FACTORS IN DISEASE.

DISINFECTION.

The *natural defenses* of the body include provisions to exclude microorganisms, to inhibit their growth, and to destroy them. That these natural defenses oftentimes fail is evident from the prevalence of infectious diseases, and for this reason the application of *artificial defenses* becomes of great importance.

These latter likewise include measures for the prevention of infection by: (1) the exclusion of living pathogenic organisms, or methods of *asepsis*; (2) the inhibition of the activities of pathogenic organisms, or the application of *antiseptics*; (3) the absolute destruction of all pathogenic organisms, or measures of *disinfection*.

A medium unfavorable to the growth and activities of pathogenic organisms is called an *antiseptic*, while one destroying them is termed a *germicide*, or, if the organism be bacteria, a *bactericide*. This destruction of agents capable of causing infection is often termed *sterilization*, while any substance that is or has been rendered incapable of producing infection is said to be *aseptic* or *sterile*. It should be observed that these terms have somewhat different meanings to the bacteriologist and to the sanitarian. The work of the former may be influenced by many of the lower fungi irrespective of their action upon the animal body, while the latter considers microorganisms only as to their ability to incite disease. Thus, to the bacteriologist the sterile article is one free from all living organisms, pathogenic or nonpathogenic, while the sanitarian deems the article sterile even though it may be contaminated by many living bacteria, provided none of these bacteria is pathogenic. To the bacteriologist an antiseptic usually means the agent that prevents the growth of bacteria, while a disinfectant is one that destroys the ability of the organism to grow. From our view-point, the antiseptic is an agent inhibiting the spread of infection, while a disinfectant is one that precludes the possibility of infection, irrespective of the viability of the bacteria. Thus, by exposing anthrax bacilli (free from spores) to a temperature of 55° C. (131° F.) for ten minutes the organisms may be so reduced in virulence as no longer to be able to excite disease, yet they grow as freely as they did before the heat was applied. While such an exposure is not bactericidal it surely is disinfectant.

Most of our knowledge relating to the means of artificial defense is based upon experiments *in vitro*, which do not represent accurately the conditions as related to practical prophylaxis. Thus, the amount of heat or the strength of chemical required to prevent the future growth of bacteria may be far in excess of the amount necessary to destroy their pathogenic action, and the fact that a certain temperature or a certain chemical does not prevent the growth of bacteria upon culture media in the laboratory is not absolute proof that it does not prevent them from inducing disease. Fortunately, the laboratory bacterial standards usually express conditions in excess of the requirements of the sanitarian, so that, as a rule, they may be safely adopted.

In general, the artificial prevention of disease is but the adoption of *sanitary cleanliness*. To produce such a state of cleanliness, *physical measures*—such as the application of heat, light, electricity and mechanical force—or various *chemical agents* may be employed; each having its especial field of usefulness. The efficiency of

disinfectants in general, and of individual agents, varies with the special parasite, the character of the associated material, the degree in which heat and moisture are present, and the thoroughness and direction of the application. When it is known precisely what organisms are present and what are the actual associated conditions, methods of disinfection may be much simplified. As a rule, nonsporogenous organisms are much more readily killed than those that contain spores; while the presence of heat and moisture, as well as the absence of albuminous material, facilitates the action of disinfectants. The efficacy of disinfectants may or may not be enhanced by their association.

Of the *chemical agents*, watery solutions are, as a rule, most efficient, alcoholic and oily substances least capable of disinfectant action. The addition of *mineral acids* increases the activity in number of chemicals, while *soap solutions* increase the efficiency of some agents and decrease that of others. The penetrative or *solvent action* of the disinfectant may have an important influence upon the results obtained. Thus, upon greasy skins watery solutions may entirely fail, although effective if first the fat be removed. Mercuric chlorid (corrosive sublimate) which under favorable experimental conditions is an energetic germicide, coagulates albumin and hence is not to be depended upon as a disinfectant of such substances as sputum. Again, bacteria may be protected if growing in a medium that neutralizes the bactericide used, and thus mercuric chlorid, being transformed into an inert sulphid upon contact with sulphur compounds, is also found to have little value as a disinfectant of fecal material. It is obvious that absolute reliance cannot be placed upon results of laboratory investigation unless in these experiments care has been taken to reproduce substantially the conditions of practice. Moreover, no single, practical disinfectant of universal application is known. In all cases the importance of attacking the infectious agents as close as possible to their source of origin is obvious. For example, it is much simpler and more rational to disinfect a typhoid stool than to attempt the destruction of the myriads of flies or the purification of an extensive water supply that may be contaminated thereby.

To the chemical and physical measures should be added the imperfectly understood *biologic* disinfectants that destroy bacteria or other organized agents even when they are circulating in the living body. The bacteriolysins, elsewhere mentioned, are examples of these important substances. Such products seem to be the only disinfectants that are efficient within the living body. It is hoped that in the development of these substances the key to the arrest of most infectious processes may be found.

MECHANICAL DISINFECTION.

This should always be used for surfaces, such as the skin, that are unable to endure the application of the absolute methods of sterilization; but

as it is not a positive means of producing asepsis, it is usually desirable to supplement it by the application of other disinfecting measures. By removal of the fat, dirt and the like, the mechanical cleansing facilitates the penetration of chemical substances later used.

Smooth, oily, polished surfaces may be wiped or washed free from microorganisms by sterilized cloths; but there is always the danger that the process may not be sufficiently thorough to remove all infectious particles. It has been found that a careful wiping of polished metal surfaces, such as the blades of ophthalmic instruments, with a mixture of ether and alcohol is usually sufficient to render them aseptic, provided they are free from depressions such as are caused by the stamp of the maker's name. A few persons with very smooth skins free from gross contamination are able to render their hands practically sterile by so simple a means as thorough washing with soap and sterile hot water, and it has been shown that the number of bacteria upon the hands of any person bears an inverse ratio to the thoroughness and duration of a scrubbing with soap, sterile water and a hand-brush. This is not, however, a purely mechanical sterilization, for soap possesses also a distinct bactericidal action. Stuttgart sand or other abrasive substance is at times mixed with the soap used, to facilitate the removal of the contaminated outer layers of the skin.

Liquids are mechanically purified in part by sedimentation, the bacteria falling to the bottom. They also may be purified by filtration through soil, diatomaceous earth, or unglazed porcelain, but no filter seems absolutely bacteria-proof during prolonged use. Experiments indicate that those of unglazed porcelain of the best type are impervious to *Bacillus typhosus*, while those composed of diatomaceous earth are gradually penetrated. In filtration through soil, the action of other microorganisms and their products is brought into play. The combined mechanical, chemical and vital processes thus acting, may efficiently disinfect the percolating liquid.

HEAT.

In the application of heat to produce sterilization, dry hot air (*baking*), hot water (*boiling*) or steam (*steaming*) may be employed. At equal temperatures, moist streaming steam is most efficacious, and hot air least so. Each method, however, has special advantages under different circumstances. Some articles are most conveniently disinfected by baking, others cannot be baked but may be boiled, while steam is applicable to still others that cannot satisfactorily be baked or boiled. Microorganisms show great variation in their resistance to heat and, in general, are less susceptible to dry than to moist heat.

Hot Air.

Air must be heated to a temperature about one-third greater than that of steam to have an equal

disinfectant action. It is only adapted to dry articles, that will withstand high temperatures, such as forms of steel, glass and earthenware. The temper of surgical instruments is affected, and as hot air has little penetrative action, it should not be used to disinfect closely packed articles, such as bundles of fabrics. The lack of penetrative power is well illustrated in the following table:

WHITELEGGE'S EXPERIMENT WITH RANSOM'S HOT AIR APPARATUS, SHOWING THE PENETRATION OF HOT AIR THROUGH DIFFERENT LAYERS OF BLANKETS.

The air escaping from the apparatus had a temperature varying from 245° F. to 260° F. (After Notter.)

Duration of Exposure	2 Layers	4 Layers	6 Layers	12 Layers	18 Layers
4 Hours.....	220° F.	206° F.	190° F.	162° F.	139° F.
6 Hours.....	226	214	208	174	153
8 Hours.....	230	221	215	196	182

Dry heat causes evaporation of most liquids, and its sterilizing action may be due to the complete drying of the bodies of microorganisms. It has been employed to sterilize for surgical purposes, catgut and other substances liable to be damaged by boiling in water or by steaming.

Hot Water.

Boiling is a very practical means of sterilizing substances not injured by contact with hot water. It enables one to conveniently apply an even, moderately high temperature for any desired length of time. The exact temperature at which the boiling-point is reached varies with the atmospheric pressure and with the purity of the water. At the sea level, pure water boils at the temperature of 100° C. (212° F.), and the boiling point progressively increases or decreases with changes in pressure. At a very high altitude, boiling temperature may fall to 60° C. (140° F.) or lower. By inclosing the water so that it is always under the pressure of the liberated steam, the boiling-point may be raised, as shown in the following table:

Steam Pressure (Pounds)	Temperature (F.)	Temperature (C.)
0	212°	100.0°
5	228°	109.0°
10	240°	115.5°
15	251°	121.5°
20	260°	126.5°
40	287°	141.5°

Boiling water (100° C.—212° F.) is an efficient disinfectant, practically sterilizing within ten minutes all substances to which it has free access. It is true that certain spores will withstand such an exposure, but, so far as known, they do not include any disease-producing species. Even spores of anthrax are killed by boiling water (100° C.) in four minutes and they probably lose their virulence at a much lower temperature. The addition of sodium bicarbonate, borax, or lime, in the proportion of one or two per cent. may increase the penetrative action and prevents the oxidation of iron or steel instruments. Boiling in such a solution, is the method of disinfecting surgical instruments usually preferred. Aluminum, however, is eroded by the presence of

alkalies. Syringes, gloves and other articles made of rubber of good quality may be repeatedly boiled in water for brief periods of time without serious injury. By the addition of ammonium sulphate or sodium chloride to saturation, the boiling point may be raised from 100° C. (212° F.) to about 127° C. (260.6° F.), and the presence of these salts enables one to boil without injury gum-elastic catheters, bougies and similar articles damaged by boiling in plain water.

Alcohol boils at a much lower temperature than water and has been used in surgical practice especially to sterilize catgut. As it is usually employed it seems to be an unreliable agent for this purpose. Far more efficient is the boiling of catgut in cumol at a temperature between 133° and 160° C.

BOOK REVIEWS.

HOW TO SUCCEED IN THE PRACTICE OF MEDICINE. By Joseph McDowell Mathews, M.D., LL.D. Louisville, J. P. Morton & Co., 1902. Port. front., ix, 215 pp., 4 pl. 8vo. Price: Cloth, \$2.

Young men will profit, no doubt, by reading these pages. They are full of sound advice on subjects connected with the daily life.

TRANSACTIONS OF THE NEW HAMPSHIRE MEDICAL SOCIETY at the 111th anniversary held at Concord, May 15-16, 1902. Concord, N. H., The Rumford Press, 1902. 335 pp. 8vo.

We are glad to receive this record of good work. It contains some careful articles on subjects of interest.

REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Vol. 5. Inf-mos. New Edition, Completely Revised and Rewritten. Edited by Albert H. Buck, M.D. N. Y., W. Wood & Co., 1902. 873 pp. 4to. Price: Cloth, \$7.

This volume abounds in articles of great practical value on subjects surgical and medical. They have come from the pens of some of the best known observers. Insanity, the diseases of the kidney, of the liver, the larynx and the lungs are thoroughly treated. There are isolated articles in great number and of much importance. Few books contain so much and so important information.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science by Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D. Vol. 21. Supplement. N. Y., W. Wood & Co., 1903. xiv, 845 pp. 8vo. Price: Cloth, \$5; Leather, \$6; Half Morocco, \$7.50.

The objection, frequently raised, to encyclopedias of medicine is that they become fit subjects for revision before they have issued from the press. We trust that none has been deterred from obtaining the one under consideration by such argument. While it records, with scientific exactness, the whole field of medicine it undertakes to keep abreast of the times by supplemental volumes. This twenty-first volume well fulfills its mission and forms a temporary capstone to a grand monument to medicine, authors and publishers.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE. DISEASES OF THE BRONCHI, LUNGS AND PLEURA. By Prof. Dr. Friedrich A. Hoffmann, Prof. Dr. O. Rosenbach and Dr. E. Aufrecht. Edited, with Additions by

John H. Musser, M.D. Authorized Translation from the German, under the Editorial Supervision of Alfred Stengel, M.D. (Vol. 4.) Philadelphia and London, W. B. Saunders & Co., 1902. 1,029 pp., 7 col. pl. 8vo. Price: Cloth, \$5; Half Morocco, \$6.

This book is in every particular thoroughly up-to-date. It is beautifully illustrated and so well written that cursory reading is out of the question. The clearness of statement, the logical arrangement of facts and the thorough way all phases of the subject are handled keep the attention of the reader. It is a fascinating book. We have gone over it carefully and with pleasure and benefit.

THE STORY OF A LIVING TEMPLE. A study of the Human Body. By Frederick M. Rossiter, B.S., M.D., and Mary Henry Rossiter, A.M. N. Y., Fleming H. Revell Co., 1902. xii, 348 pp. 8vo. Price: Cloth, \$1.

This pleasant little book was written for the young. It will bring to them, in attractive form, knowledge of the body and its functions.

INTERNATIONAL CLINICS. Twelfth Series, Vol. 3, 1902. Philadelphia, J. B. Lippincott Co., 1902. viii, 306 pp., 6 pl. 8vo. Price: Cloth, \$2.

O. T. Osborne, of Yale; Noël Manger, of Versailles; I. D. Crothers, of Hartford, Conn.; P. Manclaire, of Paris; Prof. H. Hallopeau, of University of Paris; C. S. Koenig, of Paris; David Nabarro, of University College, London; G. Dieulafoy, of Paris, and James P. Tuttle, of New York, are among the distinguished contributors to this volume. Their reputation is a guarantee of merit always.

INTERNATIONAL CLINICS. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles of Medicine, Etc. Edited by Henry W. Cattell, A.M., M.D., and Others. Vol. 4. Twelfth Series, 1903. Philadelphia, J. B. Lippincott Co., 1903. 317 pp. 8vo. Price: Cloth, \$2.

This volume contains articles of value in the departments of therapeutics, clinical medicine, neurology, surgery, dermatology and ophthalmology. We think well of it. It deals with clinical material as it promises, and satisfactorily. It does not make that vain attempt to include everything within an 8vo. of 300 pages. The cases are clearly stated, their course, diagnosis and treatment given in detail.

ANATOMY OF THE HUMAN PERITONEUM AND ABDOMINAL CAVITY, CONSIDERED FROM THE STANDPOINT OF DEVELOPMENT AND COMPARATIVE ANATOMY. By George S. Huntington, M.A., M.D. Phila. & N. Y., Lea Bros. & Co., 1903. vii, 17-291 pp., 150 pl., 4to., De Luxe Edition. Price: \$10.00.

The anatomy of the peritoneum and abdominal viscera is difficult to comprehend when considered only in the small sphere of its own limitations. Only from the developmental standpoint can the student grasp the facts which are unrolled *pari passu* in the embryological cycle to become fixed in permanent form.

Professor Huntington in interpreting the structure of the abdominal viscera and peritoneum by ontogenetic and phylogenetic comparison, presents a volume of rare interest and makes a splendid contribution to anatomical literature. The subjects treated are the Anatomy of the Peritoneum and Abdominal Cavity, and the Comparative Anatomy of the Stomach; the Anatomy of the Peritoneum in the Supracolic Compartment of the Abdomen; the Large and Small Intestine; the Ileocolic Junction and Cecum, and the Morphology of the Cecum and Vermiform Appendix.

In the treatment of each of these divisions the development is carefully elaborated and next is shown

how "every embryonal stage in the development of the higher mammalia is represented permanently in the adult structure of some of the lower types." Altogether the work is scholarly, scientific, profound. The scientific facts are clothed in a literary style of rare charm; and the illustrations are profuse, artistic and apropos. This volume is a model of the bookmakers' art. Its contents a splendid tribute to the scholarship of its distinguished author.

WILLIAM FRANCIS CAMPBELL.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY. Under the general editorial charge of George M. Gould, M.D. *Surgery*. Phila., N. Y. & Lond., W. B. Saunders & Co., 1903. 671 pp. 8vo. Price: Cloth, \$3.00; Half Morocco, \$3.75.

The charm about this Year-Book is the fact that it is not a mere resumé of the literature of surgery for the past year, but the matter is carefully edited and the cases commented upon by eminent authorities.

In reviewing this mass of literature one is impressed with several facts. First.—The more accurate discrimination in the use of drainage. The tendency to discard drainage where it was formerly thought indispensable.

Second.—The use of more exact methods of diagnosis and earlier surgical intervention.

Third.—The numerous successful reports of surgical intervention in fields but recently invaded by the surgeon, viz., surgical relief of cirrhosis of the liver, Bright's Disease, acute Nephritis, etc. This volume is unusually complete, and will be found an excellent work for those who desire to keep abreast of the times in surgical progress.

WILLIAM FRANCIS CAMPBELL.

A TEXT-BOOK OF ANATOMY BY AMERICAN AUTHORS. Edited by Frederic Henry Gerrish, M.D. Second Edition, Revised and Enlarged. Illustrated, with 1,003 engravings in black and colors. Lea Brothers & Co., Philadelphia and New York, 1902.

The first edition of this work received much favorable comment. The fact that in scarcely three years a new edition is demanded shows that it has found a place among the standard text-books of anatomical literature. The second edition has been revised, enlarged and new illustrations added. It has been the aim of the author to furnish a text-book which would supply the essential facts without encumbering the text with the unimportant and exceptional. Some of the chapters seem somewhat stilted and could, we believe, be made more complete. The chapter on muscles is a model of excellence, and we doubt if this subject has ever been presented in so clear, concise and complete a manner. The illustrations cannot be excelled. We congratulate the distinguished editor and his able colleagues upon the splendid success which has marked their efforts in this field.

WILLIAM FRANCIS CAMPBELL.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume I. March, 1903. Surgery of the Head, Neck, and Chest—Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia and Influenza; Diseases of Children, Pathology, Laryngology and Rhinology, Otology. Lea Brothers & Co., Philadelphia and New York. 1903.

The contents of this volume are of unusual interest, including as it does, subjects of interest to the surgeon, physician and specialist. The matter is well edited and the comments on the various procedures by eminent authorities lend additional value to the volume. The publishers are maintaining the high standard which has made this work popular.

WILLIAM FRANCIS CAMPBELL.

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, JULY, 1903.

No. 7

ORIGINAL ARTICLES.

GASTRIC HEMORRHAGE.

BY JACOB FUHS, M.D.

Read at a meeting of the Brooklyn Pathological Society,
March 12, 1903.

Among the symptoms denoting disease or injury of the stomach there is none that appears so significant and serious as hemorrhage. Its sudden occurrence in the midst of apparently good health, or when only slight gastric symptoms are present, the danger to life which it involves, and the comparative frequency of its occurrence, tend to increase its importance.

The advancement of the knowledge we possess in regard to this symptom we owe in part to pathological researches, especially those pertaining to diseases of the blood vessels. Experiments on lower animals have brought out some important facts, and much light has been thrown on the subject by the work of the surgeons, though a good part of our present knowledge must be ascribed to recent methods of diagnosis.

Through surgical interference the lesion is often revealed and successful treatment instituted. Still only a minority of cases of gastric hemorrhage require surgical aid, and therefore only in special cases and in severe forms may we expect to receive the benefit derived from biopsy. In a majority of cases of this kind we must depend for diagnosis and treatment on the aids afforded by clinical medicine.

While the large gastric hemorrhages are of diagnostic and chiefly of therapeutic interest, the very small and minute ones are only at times the subject of therapeutics; oftener they are valuable means of diagnosis. The etiological factors in hemorrhage of the stomach, such as infection, septicemia, anemia, toxemia, corrosive poison, diseases of the blood vessels, heart, arterio-sclerosis, aneurism, embolism, the hemorrhagic diathesis, functional diseases of the nervous system such as hysteria, can only receive mention here. The entire subject has been well treated of in the recent works of diagnosis and special works on diseases of the stomach. In papers and discussions at the recent Medical Congress at Wiesbaden in 1892, gastric hemorrhage received much attention. It has also been presented recently in an article by W. Janowski of Warschau in the *Journal of Clinical Medicine*.

It is advisable to call to mind the peculiarities of the organ in which the hemorrhage takes place, for they are responsible for its characteristics; the large size of the hollow organ, its corrosive secretion, its peristaltic motility, the difficulties of securing rest which is essential in treating hemorrhage from any source; further, the presence of sphincters that alternately contract and relax, allowing the saliva to enter, and readily admitting the biliary and intestinal secretions.

The facility with which the secretion is excited by many causes located outside the stomach is very noticeable. There is a tendency to spasm, especially of the pylorus, in many gastric diseases which lead to hemorrhage, such as ulcer and hemorrhagic erosions. Another factor is the excessively high acidity of the gastric juice, due to the excess of hydrochloric acid found in the same class of diseases.

Though the larger masses of blood vomited or removed from the stomach may not differ from those which have not been in contact with this organ, the small masses, however, present peculiarities for which the stomach is responsible. While freshly vomited blood often presents venous or arterial characteristics, it quickly assumes a brownish or blackish color when retained in the stomach, even for a short time. Janowski and Glucinski found that even in slightly acid gastric juice blood very rapidly assumed a dark color, so that this discoloration, occurring when small quantities of blood are present, does not signify a long stay in the stomach, as was formerly believed. My experiments have borne out this conclusion.

For very small quantities of blood, Weber's modification of Van Deen's test is the most sensitive and practical. The application of the test is as follows: To the filtered stomach contents add equal parts of glacial acetic acid, then shake with ether, remove the ethereal layer, adding ten drops of the fresh tincture of guaiac and twenty drops of spirits of turpentine. A blue color is produced even when minute quantities of blood are present. The addition of chloroform makes the blue color more pronounced. Neither Teichmann's nor Heller's tests are so reliable as Weber's.

The shape of the coagulum may also serve to indicate the location at which the blood became clotted. The characteristic grooves may indicate that they have been formed at the valve commi-

ventes. The first inch or so of the duodenum lacks valves, although they are found in large numbers below the entrance of the common bile duct.

A careful examination of the clot may reveal the presence of small particles of gastric mucosa and clear the diagnosis as to the seat of hemorrhage. These particles exhibit the characteristics of the glands of the pyloric or cardiac portion of the stomach.

Acid reaction of the bloody fluids and clots, due to the presence of hydrochloric acid, gives evidence of the blood having been retained in the stomach. On the other hand, the absence of hydrochloric acid should not lead one to believe that they have not been in the stomach. An acid condition of the bloody stomach contents is frequently found in ulcer of the stomach and in some cases of hemorrhagic erosions, in gastric crisis, and in some cases of pernicious anemia, especially that of malarial origin; also in trauma. Hyperchlorhydria characterizes about 50 per cent. of all cases of gastric ulcer, and perhaps half the number of cases of erosions. It is also frequently found in gastric crisis. In two of my cases of pernicious anemia the bloody stomach contents were found to contain free hydrochloric acid in excess, while in others I have observed an absence of acid gastric secretion.

A number of cases of hemorrhagic erosion examined at my office presented bloody stomach contents with a decided reduction of the secretion of hydrochloric acid. A reduced secretion of HCl is also observed in a number of cases of round ulcer of the stomach, so that the bloody fluid contained in the stomach presents a variable degree of acidity both in cases of ulcer and of hemorrhagic erosion. Hematemesis occurs in 46 per cent. of all cases of ulcer according to Leube, and in 54½ per cent. according to Ewald.

Small hemorrhages occur in a large number of the milder affections of the stomach, such as chronic alcoholic gastritis, and also during the menstrual period; the stomach contents may not show any bloody color, but still Weber's reaction may give positive results. These minute hemorrhages have been given the name "occult" by Boas. While occult hemorrhages were formerly thought to be very significant of the presence of ulcer or malignant disease, they have lost much of their importance, and are now valuable only in their association with other symptoms pointing to either the one or the other disease.

Profuse hemorrhages are more frequent in gastric ulcer, while small ones occur in malignant dis-

ease as a rule, though large hemorrhages may occasionally occur in malignancy. Septic hematemesis has been described by Eiselberg.

The gastric mucous membrane was found intact in a septic case described by Ewald, though profuse hemorrhage had occurred. The sepsis originated in a perforated gangrenous appendix. Still he found in the upper part of the duodenum a small flat erosion without any open vessels, but does not think that they were the source of the bleeding. The mucous membrane was in patches highly congested, velvety, swollen, and there were no blood clots found. Dieulafoy considers gastric hemorrhage occurring in cases of appendicitis as toxic, though in some cases he found small ulcerations in the region of the pylorus.

Ewald is of the opinion that profuse hemorrhages are not due to the small erosions found on the mucous membrane, but to a permeability of the capillary walls similar to that found in scurvy. Purpura hemorrhagica and melena frequently accompany large hemorrhages. Minute clots of blood or bloody mucus are found in the evacuations of patients suffering from even slight gastric and duodenal hemorrhages. Severe hematemesis with gastralgia or colicky pains with tenderness at the right hypochondrium points to ulcer of the duodenum. Of course, melena is a frequent accompaniment of these hemorrhages. Quinke in his article on hemorrhages from the biliary passages states that the coagulated blood may cause obstructive icterus and biliary colic, with vomiting of blood and bloody stools. These symptoms closely resemble those found in duodenal ulcer, especially as the latter is often complicated with jaundice. He also states: "Ulceration of the bile ducts is often entirely latent, so that fistulas, adhesions, etc., form unnoticed. These ulcerations lead often to important complications, thus giving rise in some cases to hemorrhages by an erosion of the hepatic artery or its branches, which leads to the formation of false aneurisms." They may open the blood vessels of the stomach and intestines and give rise to profuse hemorrhage with fatal termination through anemia and collapse.

ILLUSTRATIVE CASES.

A. The case of Lancaster is cited by Riegel in his work on diseases of the stomach, in which during the early stage of cirrhosis the fatal gastric hemorrhage was due to rupture of a varicose vein of the stomach. Severe hemorrhages from varicose esophageal veins in cases of cirrhosis are not infrequent. The evidences of

the existence of cirrhosis would lead one to suspect the cause of the bleeding; otherwise the diagnosis is very difficult to make.

The following are cases illustrating the rare causes of hematemesis. Freækal described a case of severe bleeding due to small capillary erosion of the gastric mucosa. Heinemann described two cases of flat erosions located near the cardia leading to extremely severe hemorrhage, one of which was successfully operated. Minkowski saw a case of amyloid degeneration of the heart, stomach and intestines, without any involvement of the kidneys, liver or spleen, causing severe gastric hemorrhage. At St. Catherine's Hospital I had an opportunity of observing a case of profuse hematemesis due to grave hysteria. The following interesting case came under my observation through the courtesy of Dr. H. Williams.

Mr. W. D. W., age 41, married, merchant, good family history. Typhoid fever 25 years ago. Some pulmonary trouble 18 years ago, with complete recovery after three years. He remained well up to three years ago, when he suddenly had an attack of bleeding from the stomach of about a quart. He also passed blood from the bowel. He had no pain with it. Fourteen months ago he began to have severe pain at the epigastrium directly after meals. No vomiting. Ten months ago he had a severe hemorrhage from the stomach and slighter ones during a week, the last one on April 30, 1902. June last a sarcoma appeared on his left cheek which increased to the size of half a hen's egg. Dr. Coley took out a piece and found it to be a fibro-sarcoma. At the same time a sarcoma appeared on the left side of the back a little below the shoulder blade, which was removed. Since October 11, 1902, Dr. Coley has had him under treatment with mixed toxines and X-rays, during which time the sarcoma has decidedly diminished and the stomach has ceased to trouble him.

Oser, in his work on diseases of the pancreas, mentions the cases of Hopper and Fearnside, in which gastric hemorrhage occurred together with pancreatic hemorrhage. Chlorosis is not infrequently accompanied by gastric hemorrhage. The hyperchlorhydria which is generally present in this condition aids in the breaking down of the vessels. Dieulafoy and Quincke's experiments demonstrate that anemia retards or prevents the healing of gastric lesions. Dr. Dalla Vedova of Rome has shown that injury to the celiac plexus or the splanchnic nerves in dogs causes necrotic hemorrhagic ulcerative lesions of the wall of the

stomach, which are similar to those of gastric ulcer (*Archiv f. Verd. Kr.* Vol. 8, p. 411).

The following is an abbreviated history of a case illustrating the difficulties in diagnosis. It has been reported by Janowski (*Jour. Clin. Med.* 1893). The patient entered his service because of vomiting of blood: she fainted, and afterward vomited a litre of coagulated blood during the night, and the next day passed quantities of black stools, the color being no doubt due to the presence of blood. She complained of dryness of the esophagus, which had troubled her for some weeks, increasing in intensity after each meal. Before this she had never vomited, but had at various times been troubled with nausea. For the last three years she had had pains in the left side of the abdomen. The objective examination did not reveal any disturbance of the pulmonary organs. A remedy was prescribed for the nausea. After nine days an examination of the stomach was made to determine positively whether the bleeding was caused by gastric ulcer, which was suspected from the symptoms, or by a tumor. The examination of the fasting stomach contents revealed nothing, the liquid which remained in the stomach tube giving only a very distinct HCl reaction. The patient was given a test meal, which was removed after an hour. A minute after the tube was removed the patient died. Though the analysis of the removed stomach contents showed normal constituents, he was of the opinion that he was only justified in excluding carcinoma, and he therefore diagnosed ulcer of the stomach as the complaint, and gastric hemorrhage as the cause of death. However, the autopsy showed an aneurism of the arch of the aorta that had perforated the œsophagus, causing the first hemorrhage which ceased through the closure of the opening by a blood clot. The stomach tube which was used in the second examination, tore off this clot, causing the patient's death.

It can hardly be questioned that arterial sclerosis plays an important part in the causation of gastric hemorrhage.

The general symptoms of gastric hemorrhage are similar to those of hemorrhage from other hollow organs with external communication. The rise of temperature due to anemia is noted in hemorrhage from the stomach as in other organs. The same may be said of the visual disturbances.

A bill has been passed by the legislature of Pennsylvania raising the age limit of children employed in the coal mines from 14 to 16 years.

HEMATEMESIS FOLLOWING APPENDICECTOMY, WITH THE REPORT OF A CASE AND PRES- ENTATION OF SPECIMEN AND SLIDES.

BY GEORGE RYERSON FOWLER, M.D.

Presented to the Brooklyn Pathological Society, March 12, 1903, as
a part of the discussion upon Dr. Jacob Fuhs' paper
entitled "Gastric Hemorrhage."

The occurrence of hematemesis in connection with appendicitis has received considerable attention during the last two years, owing to the writings of Kirmisson,* Dieulafoy,** Nitzsche,*** Zyphinf and others. The symptom makes its appearance at varying periods of time following the onset of the disease, but always after sufficient time has elapsed to permit of the occurrence of generalized infection. This so-called appendicular black vomit may or may not be preceded by ordinary vomiting. It may or may not be associated with diffuse septic peritonitis, and has been observed in cases where no peritonitis whatever was present. In the seven cases reported by Dieulafoy in only two was general peritonitis found upon post-mortem. In the case herewith reported only the intestinal coils in the immediate neighborhood of the original focus of infection showed signs of infection, and these were only moderately reddened. In other words only a limited peritonitis was present. Certainly diffuse or general septic peritonitis was not present. In Zyphins' case the patient perished at the end of 47 days from septic pleuritis and retroperitoneal phlegmon from a perforated appendix, black vomit having existed for the ten days before death.

While the symptom of black vomit is usually looked upon as a certain precursor of death in the class of cases under consideration, that this is not necessarily so is shown by the recovery of two patients out of the seven reported by Dieulafoy. In all the other reports of cases presenting this symptom to which I have had access, as well as those coming under my own notice, however, the patients perished.

The patient from whom the microscopic sections herewith presented were made was seen by me in consultation with Dr. Florence G. Emerson on January 30, 1903.

He was a male 48 years old, in previous good

health, and had never over-indulged in alcohol. He gave a history of having been attacked twelve hours previously with colicky pains in the abdomen, followed by nausea and vomiting; the latter soon ceased. In a few hours the vomiting returned, and this circumstance, taken with the fact that all efforts to move the bowels failed, no gas was passed per rectum, progressive distention occurred, and tenderness in the right iliac region, which had been pronounced became somewhat lessened, led to the suspicion of intestinal obstruction. A blood examination, however, made at this time showed a leucocytosis of 23,900. He was removed to the Brooklyn Hospital without delay, and prepared for immediate operation.

Operation. Upon opening the abdomen by a right lateral laparotomy, an unusually large appendix in a gangrenous condition was revealed. The intestines in the immediate neighborhood were slightly reddened. No adhesions were present. Appendix removed; parts at site of appendix irrigated with hydrogen dioxide solution, which was afterward washed away with saline solution. Tube and wicking drainage through flank.

After history. There was no anesthetic vomiting. Eleven hours after the operation the first vomiting occurred. This consisted of about eight ounces of brown fluid, which was sent to the pathological laboratory and reported upon as follows:

Amount, nine ounces plus.

Color, rusty.

Sediment, grayish brown.

Free Hcl., small amount.

Blood, guaiacum test markedly positive.

Bile, negative.

The hematemesis persisted at intervals of from one to three hours. The stomach was washed out with decinormal saline solution, after which the attacks of vomiting became less frequent. The following is the report of the pathologist of a specimen examined at this time:

Amount, two ounces, plus.

Color, amber.

Sediment, small amount.

Reaction, fairly alkaline.

Blood, positive by guaiacum test.

Bile, negative.

Later on the vomiting became more frequent, and the patient finally succumbed, the pulse rising to 150 and the temperature falling to 96° Fahr.

The autopsy showed the following:

General. Body well nourished, and muscular. Post-mortem rigidity well marked. Post-mor-

*Appendicite et gastrohagie. Gazette hebdomadaire de Médecine et de Chirurgie 1900, No. 9.

**Presse Méd. 1898, XCII. Bull. de l'Acad. de méd. de Paris 65 Ann. 3 Ser. No. 68.

***Deutsche Zeitschrift für Chirurgie, Vol. LXIV, p. 180.

**Indépendance méd. 1901, 3.

†Medicinskoje Obosrenje, 1902, 11.

tem lividity well marked in dependent parts. Abdominal incision in right iliac region shows marked signs of union.

Section. Abdominal and thoracic parieties contain a large amount of golden yellow fat; some also present in the mesentery. Repair well under way where the walls of the cecum were inverted at the site of the excised appendix. The coils of intestine in the immediate neighborhood of the cecum moderately reddened. No other peritonitis present.

Spleen. Normal in size; somewhat soft. Dark mahogany; stroma on section moderately increased.

Stomach. About normal in size; mucosa everywhere thickened and opaque. Many small ulcers (from two to three hundred) about the size of a millet seed, mainly in the trend of the lesser curvature. Some of these ulcers contain fresh and some altered blood upon the surface.

Kidneys. Left normal in size; capsule not adherent. Surface smooth; a few cysts present. Upon gross section normal in color; cortex normal in thickness; markings distinct. Right kidney similar to left.

Liver. Normal in size, weight and consistence. Upon gross section surface smooth and dull; acini contain a moderate amount of fat.

Microscopic examination of sections of the stomach wall were made by the pathologist of the hospital, Dr. Van Cott, and reported upon as follows:

Three sections were taken from portions of the stomach in the lesser curvature, where the ulcers appeared. These ulcers when fresh were about the size of a millet seed and very numerous. Some of them were filled with fresh blood clots, some with fresh unclotted blood, and some were empty. Fixation in Orth's solution; embedding in celloidin. Sections stained in hemotoxylon and eosin.

Section No. 1 shows distinct ulceration of the surface of the mucosa above an area of total necrosis. The latter passes into the submucosa, where there is a focus of necrotic tissue containing staphylococci. The vessels of the submucosa near this area contain recent thrombi.

Section No. 2 shows an indubitable embolus, involving a vessel in the mucosa just above its bifurcation. The embolus has taken a pink stain, and the vessel and its two branches contain recent blood clot. This embolus has distended the vessel, and is itself necrotic. The parenchyma of the tubules at this point reveals an early stage of cloudy swelling. Some of the cells are vacuolated,

and others are becoming coarsely granular. In general the involved areas react differently to stains from the normal tissue.

Section No. 3 shows loss of substance on the surface of the mucosa with small-round-cell infiltration at the bases of the ulcers.

All of the pathologic findings as here detailed are in agreement with the clinical phenomena present in the case. The apparent age of the processes in the involved tissues is very young, and the number of areas involved in the septic process show the presence of multiple foci, having their origin, without doubt, in the gangrenous appendix.

The occurrence of gastric hemorrhage has added another to the already long list of grave sequelæ of appendicitis. Whether this hemorrhage depends upon the toxic effects of septic bacterial products which enter the circulation and produce necrosis of the cells of the gastric mucosa, this in its turn being followed by ulceration due to the digestive action of the gastric juice, as claimed by Nitsche, or upon embolism of the vessels of the gastric mucosa, as shown in the case herewith reported, matters but little from the clinical standpoint. In either case the toxicity of the appendical lesion is responsible for the fatal issue which in the vast majority of cases ensues. In my own case there can be no doubt as to the presence of both emboli and the micro-organisms. The question may be raised as to whether the emboli bearing the staphylococci passed through the pulmonary circulation and finally found lodgment in the vessels upon the gastric mucosa, or the staphylococci alone were transported to, and produced thrombi with subsequent embolism in, the vessels. The latter view is sustained by two facts: First, in the section marked No. 1 there is a focus of necrotic tissue in which the staphylococci are to be seen, and the vessels of the submucosa near this area contain recent thrombi. Again, by referring to the section No. 2, an exquisite embolus will be seen involving a vessel in the mucosa near its bifurcation, the vessel and its two branches containing recent blood clot.

A student of the cuneiform language of ancient Babylonia states that the sanitary laws of Abraham were based upon the sanitary code of King Hammurabi. A copy of the entire code, promulgated by the latter, has been found in the excavations at Susa.

**TUBAL PREGNANCY. CLINICALLY CONSIDERED,
WITH A PLEA FOR ITS EARLY RECOGNITION
AND RADICAL TREATMENT.**

BY WALTER B. CHASE, M.D.,

Consulting Gynecologist to the Long Island College Hospital and
the Nassau Hospital of Hempstead, L. I.

Six years ago I had the honor of reading before this Society a paper on this same topic, and I have no apology in presenting for your consideration this evening the same subject, but largely to another aspect of the case, which I believe worthy of our critical study.

The mortality attending ectopic pregnancy is so large that its early recognition, for the purpose of prompt and radical treatment, is imperative.

There are two periods for interference which may be considered opportune; the first and most to be desired, is that prior to rupture, and the second at the time of rupture.

Fourteen years ago, in his work on diseases of women, Lawson Tait asserted "No authentic description of an unruptured tube pregnancy exists." and he defied anyone to have diagnosed such a case beforehand, adding, "for the woman had not missed a period," showing that his conception as to the usual time of rupture was faulty.

No possibility connected with the reproduction of the species is fraught with greater danger to the mother than an ectopic ovum.

As the etiology of this condition is not germane to this paper, it will not occupy our attention. It occurs, according to some authorities, more often in women who had been previously sterile, or who had not recently conceived; though it is by no means uncommon in multiparæ.

The usual subdivisions made are tubal pregnancy, tubo-uterine, and tubo-ovarian. Whether tubo-ovarian pregnancy ever exists is a matter of doubt, but the subject is so broad, that this evening I shall confine my remarks to the consideration of tubal pregnancy. The signs and symptoms of this condition may not differ materially in its earlier stages, from that of normal gestation, and not infrequently go on to the time of rupture, without suspicion of its presence. The size and texture of the uterus, when there is doubt as to the location of the ovum, should receive careful attention; though too much stress should not be laid on Hagar's sign of pregnancy—particularly with primiparæ. As a distinguishing feature, it should be noted, that the uterine enlargement is less in ectopic than in normal preg-

nancy. The changes in the breast, presence of nausea, and other reflexes incident to pregnancy, may all be present or wanting in certain particulars. I, however, believe, that in a majority of cases they are not as pronounced as in normal pregnancy, neither are the reflexes so acute in their manifestation, and, in fact, may be altogether wanting. Amenorrhea is the common symptom present in both conditions, so that the average woman suspects nothing abnormal in her condition. So it frequently happens, that the woman—and her physician—should he chance to see the case, during the early weeks, may have no suspicion of the status of affairs. A most perplexing question frequently presents itself in the early history of these cases; viz., how to discriminate between the hemorrhage and other phenomena attending tubal pregnancy, and those present with ordinary miscarriage.

Usually a careful analysis of the symptoms will reveal some distinguishing features. In tubal pregnancy the escape of blood per vagina, is more in gushes and irregular in its appearance. The linen is spotted and the same symptoms are prone to recur. The fact that clots have passed—and possibly deciduous shreds—which have not been examined, add to the uncertainty. If, fortunately, a portion of decidual membrane can be secured at this stage and examined histologically, the presence of the chorionic villi would dissipate the doubt and make the diagnosis of uterine pregnancy certain. The absence of the chorionic villi does not, however, establish the presence of tubal pregnancy. In these doubtful cases the fact that uterine hemorrhage may be due to uterine disease or disease of the adnexa must be remembered. The pain of abortion is likely to be different from that produced by a distended tube, caused by the presence of an ovum. The former is rhythmical, and occurs as in labor, the latter is arrhythmical, occurring at irregular intervals, and the paroxysms are longer continued, and there are soreness and tenderness in one or the other iliac fossæ. In tubal pregnancy the patient describes the pain as boring; in others as a drawing pain (which I witnessed in a recent case), or the pains may be almost constant. It is at this stage of tubal pregnancy that the physical signs are of signal value in aiding to confirm the diagnosis.

Usually to the right or left of the uterus (I have also observed it behind the uterine body) a fusiform mass the size of a pigeon's egg or larger, which is tender and may be pulsating, can be distinguished by thorough bi-manual palpation. If the examination is repeated at intervals

of a few days, a progressive enlargement of the mass will be noted. When it reaches much size it will cause displacement of the uterus. Unless adhesions of the tube are present the pregnant tube may prolapse as in hydro- or pyo-salpinx. Thus, with the rational symptoms already mentioned, a diagnosis may be made with reasonable certainty; care, however, should be exercised not to confound this with certain pathological conditions.

Tubo-ovarian abscess, pyo-salpinx, appendicitis, tumors of the broad ligament, ovarian cystoma, or a dermoid with twisted pedicle, and some other conditions, including hematomas, may require differentiation. If such an error in diagnosis should be made, the condition, if recognized, would have justified operative interference. Intestinal perforation occasions severe pain and is usually attended with profound shock, but these cases if not promptly fatal, will be rapidly succeeded by evidences of septic infection and peritonitis with their usual characteristics. I have seen two most unusual cases of violent pain and profound shock, which for hours threatened fatal results immediately following coitus, which might have been mistaken for tubal rupture. Both happened in strong, vigorous women who had borne children. The first was nearly twenty years since, and Dr. Alex. Hutchins saw the case with me. In the light of later knowledge I think it may have been due to tubal rupture. The other happened seven or eight years ago, a patient of Dr. Hoxie, in which the same violent symptoms of pain and shock were present. The woman had skipped no menstrual period; there was a careful examination made with no evidence of lesion. Her death seemed imminent. I stood ready to do an exploratory laparotomy if the exigencies of the case demanded it, but gradually the shock passed off, and in a few days she was as well as ever. If I were to venture an opinion as to the cause of the violent symptoms in this last case, I would say they were of traumatic origin, each due to a small hematoma, causing tension and severe pressure on some highly sensitive nerve going to make up the inferior hypogastric and spermatic plexuses. The classic symptoms accompanying tubal rupture are too familiar to call for more than passing notice. They are violent pain, shock, and oftentimes profound collapse; the persistency of which is due largely to continuous hemorrhage. The hemorrhage may abate or cease—the patient rally—only to be succeeded by a fresh hemorrhage and more alarming symptoms—or in fortunate cases the bleeding

may not recur. The extent of this hemorrhage is governed by conditions to which I will allude later.

Occasionally tubal rupture may take place without pronounced local or constitutional symptoms, and the peritoneal cavity contain a very considerable amount of blood and still the woman may be about her ordinary duties. This, however, is infrequent. The diagnosis of tubal pregnancy will rest on a proper appreciation and rigid analysis of all the rational symptoms and physical signs present. In the progress which has been made during the past few years in this direction the work of Dr. J. F. Baldwin of Columbus, Ohio, stands conspicuous. In the thirteen volume of the "Transactions of the American Association of Obstetricians and Gynecologists," 1900, he mentions five cases in which he had made the diagnosis of tubal pregnancy, and operated before rupture, five years previous, and at this time he reports six additional cases, making eleven in all. Dr. McNaughton, in the transactions of the Medical Society of the State of New York for 1901, reports having made the diagnosis on three cases. I have made a similar diagnosis in two cases, one of which followed an early primary rupture, which I reported in a paper on tubal pregnancy, read before this Society in September, 1901. In this case the rupture was into the broad ligament, and the life of the ovum survived. I had opportunity to watch its progressive growth until it was considerably larger than a goose egg. The woman was apprised of her danger, and I urged her to submit to an immediate operation. This she stubbornly declined. When the secondary rupture took place, which was about the fourth month, she perished from intraperitoneal hemorrhage before medical aid could be summoned. The autopsy made by her physician, Dr. Crawford D. Beasley, confirming the diagnosis in every particular. The other case is as follows:

Mrs. F., aged thirty years (my own patient), has had one living child and one miscarriage. After the miscarriage she suffered from metrorrhagia, and I curetted her two years ago last fall. She skipped two regular menstrual periods (those of November and December last), but suffered from irregular hemorrhages during this time, in which blood came in gushes or was dribbling. There was spasmodic pain in the right iliac fossa with soreness and tenderness, more marked on exercise. One day she was up and out of doors; the next day or two in bed. The rational signs of pregnancy were present, breasts

enlarged and areola well marked. During these few weeks she suffered a well marked attack of grippe and was confined to her bed. The uterus was perceptibly enlarged. I found, after repeated examinations, a small sensitive mass directly behind the uterus. Its enlargement was progressive. I made a diagnosis of tubal pregnancy, which was confirmed by Dr. J. W. Hyde. She entered the hospital January 8, 1903, and I operated the following day, and removed an unruptured right tube-pregnancy. There was a hematoma of the left ovary, which was also removed. Her convalescence was satisfactory.

It was my purpose to present these specimens for your inspection this evening, but unfortunately, they were placed in so strong a solution of formalin as to practically destroy their value.

Dr. Baldwin, in commenting on such cases says that "the time has come when such cases will be reported with increasing frequency, until the diagnosis in suitable cases becomes recognized as an essential duty of the well-qualified physician." I am in hearty accord with his views.

The preliminary, presumptive diagnosis should be made by the family physician and verified by the operator. It is for this reason I have presented this paper before the Society—the bulk of whose members are general practitioners—who stand as the representatives of progressive and preventive medicine. It may be asked, what rules should govern the management of these cases? To answer intelligently and to present the matter in its simplest form, I desire to refer very briefly, to the anatomical relation the Fallopian tube bears to its peritoneal investment. The distal third of the tube is covered in its entire circumference with peritoneum. The proximal two-thirds is enveloped by that portion which goes to make up the broad ligament. According to a well-defined law the rupture of a pregnant tube is in the direction of least resistance. If, then, the rupture takes place within this proximate portion the ovum and blood-clots are most always extruded within the folds of the broad ligament. If in the distal portion, the escape of the ovum on rupture, and the resulting effusion is intra-peritoneal—directly into the peritoneal cavity. In the former case the hemorrhage is extra-peritoneal, in which case the resistance of the peritoneum, forming the broad ligament, may be sufficient to limit the hemorrhage.

If the tube is ruptured beyond its attachment, there is nothing to produce hemostasis except Nature's unaided efforts. If a large amount of blood is poured into the peritoneal cavity, it produces a boggy feeling in the vagina, and if suffi-

cient to rise above the brim of the pelvis, may cause dullness. While the peritoneum will take care of a surprising amount of blood in some cases, these large effusions are liable to infection by their close proximity to the lower portion of the colon, and a grave problem then remains for our solution. Should the fetus chance to retain some vital placental contact in its new relation, a new covering for it may be formed, and result, later on, in a secondary rupture, with consequences not pleasant to contemplate. Should the fetal life perish, suppuration is likely to follow. If extra peritoneal, absorption or softening will take place unless fetal life continues. In the event of softening, as is frequently witnessed in hematomas, and where found, evacuation may be had by vaginal or abdominal section.

As to the time of primary rupture, observers state that it may occur from the third to the twelfth week. In my own experience, I should say more cases had ruptured after than before the eighth week. Certainly, more have skipped two menstrual periods than one. There are some points to which I desire to give special emphasis: First, that the general practitioner in examining a woman liable to pregnancy should include, in the possibility of his findings, that of tubal pregnancy. Second, if rupture has not taken place, the sooner the pregnant tube can be recognized and removed the more conservative results will follow. Third, in cases in which the conditions point to recent rupture of the intra-peritoneal variety, and evidences of free hemorrhage are present, immediate operation should follow. To leave a woman to chance, when the surroundings possibly admit of radical interference, is little less than criminal. The hazard from hemorrhage, or subsequent complications far outweigh the risk of opening the abdomen and securing the bleeding vessels, often removing the tubes, and emptying the peritoneal cavity. Fourth, if evidence is present that the rupture is extra-peritoneal—into the broad ligament—and the resulting hematoma of the broad ligament is moderate in size, justification may be had in waiting for developments, as Nature may, unaided, take care of the mass. Fifth, and finally, while it will continue to happen that ectopic pregnancy will show frightful mortality, in cases in which no correct diagnosis has been made until the chances of successful interference have passed, it nevertheless remains true that, with a proper appreciation of the ground, on which at least a presumptive diagnosis can be made, by the general practitioner, an increasing number of lives should be saved.

263 Hancock Street.

THE SKIN AS A SOURCE OF WOUND INFECTION.

BY GEORGE RYERSON FOWLER, M.D.

Read before the Brooklyn Surgical Society, February 5, 1903.

THERE can be no question that the skin is the most dangerous foe which the surgeon is compelled to encounter in his operative work. It likewise figures largely as a source of infection in injuries accidentally inflicted. Small wonder that this is true when the complexity of its structure, and the opportunities for the harboring of microorganisms in its glandular apparatus opening upon the surface are taken into account. However thoroughly the integumentary surface may be cleansed and disinfected, one has only to wait for periods of time varying from 5 to 15 minutes before cultures may be obtained from a surface previously sterile. It would seem as if our best efforts in securing and maintaining a sterile field of operation must prove futile in view of the difficulties in the way of reaching bacteria lodged in the depths of the glandular apparatus of the skin covering of the body.

As a result of a 12-years' study of the subject of disinfection of the skin, Haegler* published a 200-page work upon the subject. He succeeded in showing that bacteria were present in the hair follicles, sebaceous glands and artificial crevices of the skin. The details of Haegler's work show to what lengths he went in bringing out all the facts in this connection. The most difficult region of the integumentary surface, namely, the hand, was made use of in carrying out the experiments upon which his observations are based. Among the facts brought out in this connection may be mentioned the following as being most important to the practical surgeon: (1) Bacterial proliferation does not take place in the deeper portions of the healthy skin, but the bacteria are eliminated to a greater or lesser extent by the normal secretions of the skin. (2) After the most thorough cleansing and apparently perfect and complete destruction of microorganisms upon the surface, as shown by a sterile condition of the latter, microorganisms find their way, under favorable conditions, to the surface. These favorable conditions are similar to those which obtain in the field of operation and upon the surgeon's hands while engaged in his work, namely, immersion in warm blood serum.

In carrying out these experiments every pre-

caution was taken. Special staining methods were employed to demonstrate the presence of bacteria in the depths of the skin structure. Following disinfection of the skin surface the hand was confined in a special device for the purpose of excluding contamination from atmospheric air. While in this special device the hand was immersed in sterile warm blood serum, and the latter tested at intervals as to its continued sterility.

The results obtained from these experiments had been previously obtained by other experimenters, particularly by Paul and Sarweg*, although the experimental work had not been carried out upon so large a scale, nor for so long a period of time. These observers obtained sterilization by means of alcohol disinfection. After immersing the hands in sterile warm water and irritating the surface with sterile sand, re-infection occurred, definite cultures of microorganisms which found their way to the surface being made.

Two facts were brought out in these experiments which are of practical value to the surgeon, one being the influence of agents possessing an astringent action upon the skin in preventing migration of bacteria from the depths to the surface, and the other the readiness with which this migration takes place under the influence of warmth and moisture, aided by influences irritating to the skin. Based upon these results obtained by Paul, Sarweg, and Haegler, in the experiments above alluded to, other observers have shown that hands forcibly scrubbed for long periods of time in hot water became subsequently infected by microorganisms from the depths of the skin itself much more readily than hands which had been simply well washed in cold, or water but slightly warmed, sterility of the surface having been obtained in both instances as shown by the failure of culture tests.

Beside the disadvantages arising from prolonged irritation of the skin surface in that this is a means of facilitating the passage of microorganisms to the surface, the readiness with which pathologic conditions of the surface arise as a result of these influences should not be lost sight of. With the occurrence of abrasions of the skin and of eczematous conditions come opportunities, not only for the lodgment of bacteria, but for the multiplication of the latter, thus increasing the dangers of infection a thousand-fold. Normal sterility of the skin surface may

* *Handerinigung, Handesinfection und Handeschutz, Eine experimentale und kritische Studie*, Basil, 1900.

* *Müchener med. Wochenschrift*, 1899, No. 49. *Müchener med. Wochenschrift*, 1900, No. 27-31. *Beilage Centralblatt für Chirurgie*, 1900, No. 28.

be obtained by the judicious employment of proper cleansing methods, and this sterility maintained by measures to be mentioned later on; with abrasions present, however, and particularly the cuts which easily occur in the natural folds of the wet fingers from tying ligatures, the difficulties in the way of the successful application of the best known disinfectant methods are greatly enhanced, or attempts to establish sterile conditions rendered abortive altogether. In addition, the chances of rapid re-infection, should primary disinfection be obtained, are enormously increased.

The observations of Haegler, Paul, and Sarweg have given rise to redoubled efforts to maintain sterility of the skin in operative cases, as well as of the hands of the surgeon. Murphy has proposed to gum a piece of rubber tissue upon the skin so as to include the place where the incision is to be made. While this provides protection of the wound from bacteria upon the surface to a certain extent, it does not prevent infection from the edges of the skin wound, and this source of infection, it must be admitted, is the most prolific. This has been shown by experiments conducted for me in the pathological and bacteriological department of the Brooklyn Hospital, cultures taken from the knife making the skin incision giving positive evidence of this fact. Of course, the lesson to be learned from this demonstration is to lay aside the knife making the skin incision, and to use a fresh knife for the deeper dissection. Even this cannot be depended upon, for the reason that it is almost impossible to make the primary cut exactly through the skin and no deeper. If the skin wound is of sufficient depth to pass to the fat layer, the edge of the knife must of necessity come in contact with the latter, and inoculation to a greater or less extent must almost necessarily follow. And this, occurring in fatty tissue, which is particularly prone to infection, in all probability, gives rise to some of the suppurative conditions which sometimes occur unexpectedly in operation wounds and which cannot be otherwise accounted for. What is true of the fat layer is also true of the deeper structures, although it is to be noted that the frequency of infection in the latter instance is not nearly so great, owing, first to the greater distance from the source of infection, and second to the comparatively greater vital resistance of the threatened structures. But there is no more reason for supposing that an operator's finger or hand, crowded through a small abdominal opening will

not become infected in its passage past the edge of the skin incision than that the knife which made the incision would escape infection. And further, there is no more reason for supposing that the finger, so infected, would fail to convey infection to the peritoneal cavity than that the infected knife would give a negative result when planted in a culture medium. It is just as true that one of these series of events occurs as that the other has been demonstrated by laboratory experiments. The only difference is that in the case of the finger infected by the skin wound the infection is carried to a lymph sac which at once becomes the battle ground between the bacterial invaders and the defensive phagocytes, with the chances in favor of the latter unless the former are in overpowering numbers; while in the case of the infected knife transferred to a culture medium the bacteria are left in complete possession and encouraged to proliferate. But the peritoneal sac cannot always be depended upon to overcome bacterial infection, as many of us know to our sorrow. There comes a time to all who occupy large fields of surgical work when we realize that microorganisms have entered unexpectedly from without and destroyed our patients. And in revising our technic, ligature and suture materials, and investigating every supposedly possible avenue of infection, how many of us think of the edge of the skin incision as the point from which the fatal invasion took place?

And this leads us to consider the most productive avenue of infection in operative work. I refer to the surgeon's hands. So-called disinfection of the hands has received a large share of attention in recent years, and the literature upon this subject alone would fill a large volume. Judging from the results of bacteriological experiments it would seem to be practically impossible to render and maintain the hands sterile for the time required for the average operation. In addition to the physical characters of the integumentary structures in general there are certain harboring places upon the hands for bacteria, namely, the spaces beneath and around the finger nails. These spaces have been long known as prolific sources of infection. Preisich and Schütz,* with the object of ascertaining to what extent the finger nails served as a medium for the transmission of the infection of tuberculosis, made certain observations upon children of ages varying from six months to two years. The observations were carried on for a period of two

* *Berliner klinische Wochenschrift*, May 19, 1902.

and one-half months, during which time the children were kept indoors for a greater part of the time, and hence were not particularly exposed to sources of general infection. The dirt from the finger nails was made into an emulsion with sterile bouillon and injected subcutaneously in Guinea pigs.

The interesting point relating to these experiments in connection with the subject under discussion is the fact that while the number of tubercle bacilli present was insufficient for successful inoculation as far as the development of tubercular lesions was concerned, so many of the animals died of acute infection that the experimenters were compelled to abandon this method of study, and to rely upon the results of staining.

No thinking surgeon can fail to be impressed with the supreme importance of making every possible provision against infection from the skin in his operative work. So far as the skin of the patient in the operating field is concerned, while the ordinary preoperative care which this receives suffices to disinfect the surface, there is still wanting some trustworthy means of sterilizing the depths of this structure. A number of years ago, at St. Mary's Hospital, I sought to accomplish this by painting the exposed area with tincture of iodine. I still employ this means in emergency cases where the exigencies of the case forbid a prolonged preoperative preparation. I have also employed the method of staining the skin with permanganate of potassium and at once removing the stain with oxalic acid. In addition to the permanganate of potassium I have added mercuric chlorid to the solution with the hope of securing the penetration of the latter in the staining process. The stain is permitted to remain throughout the operation. These methods still lack bacteriological confirmation of their definite superiority over the best of the other methods at present employed, which confirmation I hope to supply at an early day.

In the general cleansing of the surface of the hands and arms it is probable that the method of combined mechanical and chemical disinfection which bears the name of Fürbringer does all that can be accomplished in this direction. An unnecessarily prolonged and vigorous application of the brush, however, in sensitive skins causes "hangnails" and minute tears in the skin near the junction of the skin and matrix of the nails, as well as eczematous lesions of the hands and arms. Bearing in mind the results of the experiments of Paul and Sarweg, in which infection

of the surface followed irritation of the latter with sterile sand, the microorganisms migrating from the depths; and in addition, the highly dangerous conditions arising from the presence of lesions of the skin, the question arises as to whether, in our zeal to thoroughly cleanse and disinfect the hands and arms, we may not overdo the matter, and, in the long run, encourage the very state of affairs which we have so strenuously labored to avoid.

Another source of infection which must be guarded against is that which occurs beneath the finger nails. The extremely virulent character of the accumulations in these localities is emphasized by the results of the experiments of Preisich and Schütz, and the difficulties in the way of removing them is a matter of common observation in the every day experience of practical surgeons.

In my own operative work I endeavor to meet the indications of disinfection of the hands by the following routine course of procedure:

1. The finger nails are trimmed and filed as closely as possible consistent with the preservation of their use in aiding the tactile sense.

2. The hands are then washed in the ordinary way with tincture of green soap and warm water, without the aid of a brush, one hand being employed to wash the other.

3. The spaces beneath the nails are then scraped with a blunt, not a sharp instrument, the object being to loosen the dirt beneath the nails which has been previously softened by the preliminary washing.

4. The nail spaces are now cleansed by a special nail brush, which consists of a small wire brush stretched in a frame. The wire brush is made of two strands of wire twisted together, with bristles of brush material or cotton, worked into the twists. These wire brushes are sold in lengths as smoking pipe cleaners. The short length of brush is easily removed from the frame, and being quite inexpensive, can be frequently renewed without great cost.

5. The ordinary hand brush, properly sterilized, is now used to scrub the palms of the hands, and the ends of the fingers, including the entire finger nails. The backs of the hands, where eczematous conditions are apt to arise, and the arms as well, are cleansed with a folded square of gauze used as a wash cloth. Running water only lukewarm is used throughout.

6. All traces of soap are now rinsed off in a lukewarm 1-2,000 mercuric chlorid solution, after which an alcoholic solution of the same strength

is used. With the aid of gauze the alcohol is rubbed in and about the matrix of each nail separately.

7. The further steps of the preparation will now depend upon the character of the work in hand. If the hands have been recently exposed to unusual infection, such for instance as a pus case, additional precautions must be taken to prevent the migration of bacteria from the depths; and if the case about to be operated upon is septic, provision must be taken to prevent infection of the hands. In the first instance, namely, when the hands have recently been exposed they should be thoroughly and deeply stained with the permanganate and corrosive sublimate solution. My operating room nurses keep powders on hand containing two ounces of permanganate of potassium and seven and a half grains of corrosive sublimate. One of these powders dissolved in a quart of hot water makes the required solution. A two-minutes immersion suffices to stain the hands deeply, after which the latter are decolorized in a hot saturated solution of oxalic acid, in order to obtain the powerful disinfectant properties of the latter. The addition of a half ounce of strong ammonia water to a quart of sterile water neutralizes the acid, after which the ammonia solution is washed off in the bichlorid solution. The hands are again deeply stained in the potassium permanganate and mercuric chloride solution, and this stain permitted to remain. During the operation it is of supreme importance to dip the hands at least every five minutes in a *cold* solution of sublimate.

In septic cases the bleaching in oxalic acid before the operation is omitted, the hands being simply protected after cleansing by deeply staining them with the permanganate and sublimate solution, and permitting this to remain during the operation. This course is also followed when a clean case is to be operated upon and the hands have not been recently exposed to especially infective influences, the stain, under these circumstances serving the purpose of preventing the passage of microorganisms from the depths of the skin of the hands to the surface.

While the above steps of preparation strike one at first glance as being somewhat elaborate, they are not nearly as much so as they appear to be upon description. If the following points are borne in mind in connection with the requirements of hand disinfection, there need be no difficulty in following the method:

1. The necessity for cleansing the surface, and all accessible harboring places for dirt.
2. The necessity for avoiding irritations of the

skin of every description, and of removing those influences which relax its structures and thus favor the migration of microorganisms from the depths to the surface.

3. The protection of the hands from microorganisms which give rise to suppuration.

4. The frequent disinfection of the surface of the hands during operations.

In my experience the use of rubber gloves in cases in which delicate manipulation is required is impracticable. The constant risks of tearing or puncturing the gloves, thereby permitting the bacteria-loaded emulsion of *débris* from the skin resulting from the poulticing effects of the gloves, to escape through the opening, is to my mind a contraindication to their use in aseptic cases. They may be used to advantage in digital examinations of septic canals and cavities, and in operations in grossly septic cases in which the necessity for delicate manipulation is not a feature. Here their purpose is that of protecting the hands of the operator. They may also be worn when wounds or other septic foci exist upon the hands of the operator, or his assistants, when these cannot be covered by finger cots. But so far as their use in protecting the patient is concerned they are a mockery, a delusion and a snare, besides adding greatly to the expense of maintaining the operating room.

The use of impermeable preparations upon the hands has had quite an extensive trial in Europe. The best known of these is a patented preparation sold under the name of "Chîrol," to which attention was first called by Kossmann, of Berlin.* It is a solution of gutta-percha and fatty oils in ether and alcohol.

The hands are dipped in this fluid. The method has not found favor for the reason that it does not remain upon the skin, but is scraped off during the operation. Lévai's proposition to varnish the hands with a mixture of copal varnish, Venetian turpentine, oil of turpentine, ether and collodion is not likely to meet with greater favor than Chîrol.

Engels† has recently published the results of extensive bacteriological examinations with sublamin as a disinfectant of the skin. This drug is said to possess the property of penetrating into the depths of the skin, and destroying all microorganisms. It is claimed to be non-irritating to the skin, even in two to three per cent. aqueous solutions. The drug is a combination of mercuric sulphate with ethylenediamin. I have had no experience with this drug.

* Centralblatt für Chirurgie, 1900, p. 585.

† Archiv. für Hyg., Vol. 45, No. 4. Medical News, January 31 1902.

A FEW REMARKS ON SOME EVERY-DAY EAR CASES.

BY J. E. SHEPPARD, M.D.

Clinical [Professor of Otolaryngology, Long Island College Hospital.

Read at the meeting of the American Laryngological, Rhinological and Otolological Society, Lexington, Ky.,
May 1st to 3d, 1903.

As a basis upon which to construct this paper, I have taken a recent 1,000 cases which furnished me with 1,581 diagnoses. Of these latter, 658 concerned the middle ear, of which 134 were chronic catarrhal otitis media (O. M. C. C.). The internal ear alone was involved 57 times, and in 177 there was mixed, middle and internal ear disease.

[NOTE.—For convenience in this paper I will designate the O. M. C. C. cases as group A; the Otitis Media et Interna cases as group B; and the Otitis Interna cases as group C.]

From these three groups of cases it has been my endeavor to learn some facts, and to draw some conclusions, and possibly to evolve some questions that we may with advantage make the basis of discussion.

To show the ages at which the individuals in these groups presented themselves for treatment I append the following:

In O. M. C. C.	Ages of Patients.	No.
0	10	6
11	20	12
21	30	30
31	40	38
41	50	30
51	60	14
61	70	3
Over	70	1

In Ot. M. et Int.	Ages of Patients.	No.
0	10	2
11	20	2
21	30	25
31	40	46
41	50	30
51	60	35
61	70	28
Over	70	9

In Ot. Interna.	Ages of Patients.	No.
0	10	5
11	20	4
21	30	8
31	40	15
41	50	11
51	60	6
61	70	4
Over	70	4

Thus, of group A, 98 cases were between twenty and fifty, the decade from thirty to forty showing the largest number, 38; of group B, the decade from thirty to forty again shows the largest number, 46, the others between twenty and seventy being relatively even; of group C, the largest number, 15, is again found between thirty and forty, with otherwise a relatively even distribution between twenty and sixty.

Of group A, 20 cases were entered as without complication, or accompanying conditions; where these existed, the most frequent were nasopharyngitis (mostly more or less hypertrophic), 49 times; tubal catarrh and stenosis, 27 times; septal exostoses (spurs, etc.), 25 times; hypertrophy of tonsils, faucial, 3rd and 5th, 14 times; hypertrophic rhinitis, 6 times; dental neuralgia, 6 times, and impacted cerumen, 5 times.

The cases in group B were put down as O. M. C. C. et Int., 44 times (indicating slight involvement of the perceptive apparatus); O. M. et Int., 92 times (indicating a more nearly equal involvement of the two portions); O. M. P. Resid. et Int., 14 times, while aural neurasthenia was specifically mentioned as accompanying the O. M. C. C. 20 times, and anemia of labyrinth 3 times, with a few other scattering, accompanying conditions.

In group C the diagnoses were: aural neurasthenia, 17; Ot. Int., 18; presbycusis, 4; anemia of labyrinth, 5; concussion of labyrinth, 4; meningitic deaf-mutism, 2; labyrinthine tinnitus, 4; Meniere's disease, 3.

As to Etiology: In O. M. C. C., the trouble was attributed 111 times to conditions in the nose, throat and Eustachian tubes, and in 21 cases no evident cause could be traced. In the *mixed* cases it was attributed to nose, throat and tube conditions 42 times; to neurasthenia, 50; to neurasthenia *and* nose, throat and tube conditions, 32; to neurasthenia *and* other general conditions, 4; general diseases, 15; anemia of labyrinth, 3; old age, 5; syphilis, 4; fracture of temporal bone, quinine and tobacco, each, 2; and unknown, 16.

In otitis interna, to neurasthenia, 17; nose, throat and tube conditions, 4; anemia, 7; syphilis, 5; trauma, 4; old age, 4; organic nerve disease, 5; other general diseases, 2; tobacco, 2; hemorrhage (Ménière's disease), 3; sea-bathing, 1; and unknown, 3.

The *general condition of health* was investigated, with the following results:

In Group A.—Good, 80; grippe recently, head-colds, sore throat, asthma, etc., 15; stomach trouble, indigestion, uric acid, rheumatism, etc., 9; more or less nervous, 7; neurasthenic, tire easily, etc., 9; kidney trouble, anemia, etc., 4; more or less general debility, 7; syphilitic, 1; tubercular, 1; menopause, 1.

In Group B.—Good, 69; more or less neurasthenic, 49; more or less nervous, 10; organic nerve disease, 5; more or less general debility, 11; menopause, uterine trouble, etc., 3; frequent head-colds, 3; stomach trouble, uric acid, etc., 11; syphilitic, 6; Bright's disease, 1; anemic, 4; frequent headaches, 3; prolonged cough, 2.

In Group C.—Good, 17; more or less neurasthenic, 18; anemic, 5; more or less general debility, 6; syphilitic, 4; organic nerve disease, 2; menopause, 1; malarial, 1; kidney disease, 1; intensely nervous following removal of goitre, 1; nervous from excess of tobacco, 1.

Of Occupation: Group A.—Unknown, 8; minors, 10; at leisure, 9; housewives, 35; mercantile life, 34; professional life, 25; mechanics, out of door work, etc., 13.

Group B.—Unknown, 9; minors, 2; at leisure, 17; housewives, 57; mercantile life, 35; professional life, 33; mechanics, out of door work, etc., 24.

Group C.—Unknown, 2; minors, 6; at leisure, 8; housewives, 15; mercantile life, 11; professional life, 7; mechanics, out of door work, etc., 8.

As to the presence or absence of obstructive nasal or naso-pharyngeal conditions, or of some non-obstructive source of inflammation of nasal or naso-pharyngeal mucosa:

In Group A.—Obstructive conditions now, 32; clear history of previous obstructive conditions, 6; hypertrophic, but non-obstructive conditions, 45; intra-nasal pressure (spurs, etc.), 30; in addition to the latter, but already counted among the obstructive conditions, 7; no history of such conditions, 21.

In Group B.—Obstructive conditions now, 24; clear history of previous obstructive conditions, 6; spurs causing pressure, 25; spurs not making pressure, 16; hypertrophic, but not obstructive,

rhinitis, rhino-pharyngitis, etc., 37; no history of such conditions, 73.

In Group C.—Obstructive conditions now, 3; clear history of previous obstructive conditions, 2; spurs making pressure, 6; spurs not making pressure, 6; naso-pharyngitis, 5; no history of such conditions, 35.

As to the involvement of one or both ears:

In Group A.—Both, 106; one, 28.

In Group B.—Both, 154; one, 23.

In Group C.—Both, 43; one, 14.

Results of treatment:

In Group A.—Not treated more than three times, 47; remained stationary, 27; improved slightly, 23; improved distinctly, 37.

In Group B.—Not treated more than three times, 83; remained stationary, 44; improved slightly, 29; improved distinctly, 21.

In Group C.—Not treated more than three times, 48; remained stationary, 2; improved slightly, 2; improved distinctly, 5.

There are certain facts to be gathered from these data which are more or less significant. Perhaps the first striking fact is the number of *mixed* cases as compared with the O. M. C. C. cases, viz., 177 of the former as contrasted with only 134 of the latter; again, there are more than two-fifths as many cases of involvement of the perceptive apparatus alone as of O. M. C. C., viz., 57 to 134. Unless I am mistaken the impression generally prevails that O. M. C. C. greatly outnumbers the other conditions, an impression due, I must believe, to an insufficient use of the differentiating tests. By this term I mean, for daily use, that the absolute duration and relative intensity of a series of tuning forks should be secured in all cases examined, for comparison with the normal standard, and a more or less accurate determination of the high and low tone limits. Hence since the treatment of these various groups differs in some degree, the conclusion is inevitable that, for the best results in all our cases, an accurate diagnosis is essential, a truism which in my judgment is too often overlooked.

As a question for consideration I would ask, why is there this so frequent involvement of the perceptive apparatus? As a tentative answer I would suggest, first, the exhausted nervous system due to the all-too-strenuous business and social life of the present day; and in the second place, possibly, the constant noises, big and little, by which we are surrounded in our daily city life.

A second fact to which I would call your attention concerns the age of these patients; in all

three groups the decade containing the largest number of cases is the same, viz., that from thirty to forty; along with this must go the further fact that in the *mixed* cases there is relatively a much larger number appearing after fifty years of age than in either of the other groups. Possibly the following conclusions are justifiable: Group A and Group C have no connection with one another in any way; further, perhaps in a considerable proportion of Group B, the involvement of the perceptive apparatus has been preceded by the O. M. C. C. condition, but that such involvement is an extension inward of the O. M. C. C., as I believe to be largely held, I am exceedingly doubtful.

Question: May it not rather be a simultaneous involvement of the internal ear, due to some other cause?

Along this same line, under the heading of Etiology, we come upon these facts; in group A, as we would expect, about five-sixths are directly attributed to conditions of the nose, throat and Eustachian tubes; in group B, these same parts find mention in less than half the total number, while neurasthenia and other general conditions loom up as important factors in about two-thirds of the cases; while in group C, the nose and throat conditions dwindle to 4 in 57 cases, and the trouble is referred to general conditions in about 85 per cent. of the total. These facts seem to me to bear out virtually the conclusions stated above. In this connection the question may perhaps be properly asked, what proportion of our middle ear catarrhal cases in adult life can properly be referred to adenoids in childhood? I must say that the impression grows upon me that this is true of a very large proportion of them; and if so, then the conclusion is inevitable that the more universally they are removed the more is being done in the way of preventive medicine.

In regard to the *general condition of health* it seems to be a fact that of group A 60 per cent. were in good health, this being true of only 38 per cent. in group B, and of 30 per cent. in group C. Of the 40 per cent. O. M. C. C. cases out of health the respiratory and the nervous systems were affected in about equal numbers, with the gastro-intestinal tract affected in a majority of the remainder. Out of the 62 per cent. *mixed* cases 37 per cent. suffered from some trouble affecting the nervous system, leaving 25 per cent. suffering from gastro-intestinal disturbance, general debility and other general conditions. Out of the 70 per cent. otitis interna cases out of

health the general nervous system suffered in about 45 per cent., leaving practically 25 per cent. affected with general conditions of one kind or another.

These figures would seem to coincide more or less closely with what we would expect in this direction.

I find no especially significant fact under the heading of *occupation* excepting only this: There is not a telephone operator in this whole group of cases. From this fact one of two conclusions may be drawn: either some one else has a pull with the "Hello" girls, or else their work does not conduce to ear trouble.

Question: Is there, or is there not, any foundation for the idea, which I believe to be rather largely held, that the work of a telephone operator is productive of more ear trouble than are other occupations? May it even be possible that by the shutting out of other noises, and the more or less constant vibratory massage of a certain character, that the tendency is toward the prevention of this class of ear troubles?

In group A some nasal or naso-pharyngeal condition (obstructive, hypertrophic, but non-obstructive, irritating pressure, etc.) existed in 84 per cent. of all the cases; in group B, 55 per cent.; in group C, 40 per cent.

Both ears were involved in 78 per cent. of the first group, 87 per cent. of the second group, and 75 per cent. of the third group.

In these facts there is perhaps nothing different from what we would expect to find.

When investigating the *results of treatment* I was at first rather startled to find the number of cases that had not come more than three times for treatment, this number having been taken in a rather arbitrary way, in the belief that without more than this much treatment no result could be expected. But when we consider the not altogether brilliant outlook that we, to be honest, must hold out to these patients, it is possibly not surprising that as many as 35 per cent. (as in group A) should go further and fare worse at the hands of those who promise to cure them in a month. Taking out, then, these 47 cases, we are left with 87 who underwent treatment, and of these only 30 per cent. remained entirely stationary, 70 per cent. showing more or less improvement, 42 per cent. being put down as showing a distinct gain.

Of the *mixed* cases, 83 out of 177 received only three treatments or less. Of the remaining 94, who had some treatment, 44, or a little less than 50 per cent., remained stationary, the other 50

receiving more or less benefit, 21 of them showing distinct gain in hearing.

Of the third group, 48 out of 57 did not remain under continuous treatment, to account for which several factors must be considered; in the first place, in a considerable number of the cases there was absolutely no chance of the conditions being bettered, and the patients were so informed at the time of the original examination. Again, among those which may be benefited, as a rule, no local treatment is required, and it has been my general custom to refer such cases back to their family physician, to whom a report is made of the findings in the case, and suggestions made as to treatment. Thus, I have left only 9 cases in this group who have continued under my treatment; of these, 2 have remained stationary, 2 have improved slightly, and in 5 there was a distinct gain in hearing.

The facts are, then, that more or less improvement was obtained in 45, 28 and 12 per cent. respectively of the total number of cases in the three groups, while in the cases which were really treated, more or less improvement resulted in 69, 53 and 77 per cent., the improvement being considerable in 42, 22 and 55 per cent. respectively.

That there is nothing brilliant about these results I am well aware—at the same time they are to me at least an incentive to persevere and to try for better results in a class of cases which, untreated, is almost sure to grow steadily worse, and which it was the custom not so very many years ago to advise against treatment. But let us at the same time, by all means, do what we can, as intimated above, to prevent by removal of adenoids, the development of conditions for which we can do relatively so little. The plan of treatment seems to me beyond the scope of this paper. There is no definite plan; perhaps I might sum it up by saying that tireless patience and perseverance are needed, together with a removal of all the causes so far as possible, especially the local ones.

TERATOMA OF THE EAR.*

BY WILLIAM C. BRAISLIN, M.D.,

Consulting Aural Surgeon, Bedford Hospital. Attending Surgeon, Brooklyn Eye and Ear Hospital,

A tumor, the subject of this paper, was removed from the auditory canal of a woman fifty years of age. The patient came to my office complaining chiefly of tinnitus of the left ear, of

so severe a character that she was unable to sleep during the greater part of the night. She stated that symptoms referable to the ear had been present about two years. During this time her attention had been drawn to the ear, and she had aggravated the itching which was present, by the frequent use of a hair pin. There had been no pain at any time.

Latterly there was almost absolute deafness on the affected side and a very evident obstruction which prevented the introduction of her finger tip or even a small pin. The watch pressed against the affected ear was not heard.

On examination, the ear was found to be tightly blocked by a tumor, which completely obstructed the meatus. A probe of the smallest diameter could not be passed along the floor or walls of the canal beyond the obstruction. Its attachment seemed to be upon the superior aspect of the canal. It was covered with skin, reduplicated from that of the canal. A slightly dilated vein crossed it, giving the growth somewhat the appearance of a sebaceous cyst. That it was not a sebaceous cyst was evident from its density.

An exploratory thrust with a sharp, narrow bistoury was followed by such brisk and persistent hemorrhage that it was regarded as probably an angioma. This diagnosis was favored by the presence of several dilated branches of the posterior auricular vein behind the ear, at the attachments of the auricular cartilage.

Operation was advised, and performed some days later.

A wide incision, as in a classical mastoid operation, was made, to allow the auricle to be drawn well forward. No especial hemorrhage was met with, though the vessels in this region were all larger than common. The tumor was found attached to the periosteum of the bony canal, the calibre of which it tightly filled. It was enclosed in a capsule and was dissected out entire as shown in Fig. I., drawn to actual size.*

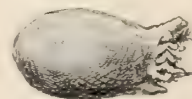


Fig. I. Teratoma of the Ear. Natural Size, as Dissected from Beneath Skin.

Deep within the bony meatus it was firmly attached by a sort of pedicle. It was planned to dissect the tumor from the interior of the canal and to leave the skin unbroken for replacing in position subsequently, but it was accidentally

* Read at the meeting of the American Laryngological, Rhinological and Otological Society, Lexington, Ky., May 1-3, 1903.

*The writer is indebted to Dr. N. T. Beers, Jr., for the drawing.

buttonholed at the deepest portion of the canal just externally to the drum membrane. The soft parts of the canal were replaced, and held in

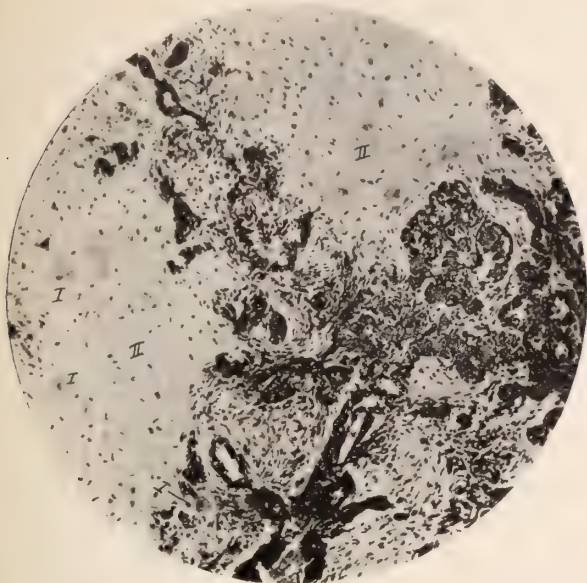


Fig. 2. Magnification 100. No. 3 Obj. No. 4 Oc.
I, I. Arteriosclerosis and hyaline degeneration.
II, II. Cartilage.

position by gauze packing. Sutures were employed to close the wound behind the ear.

Healing was prompt and satisfactory; the auditory function being restored, and but a

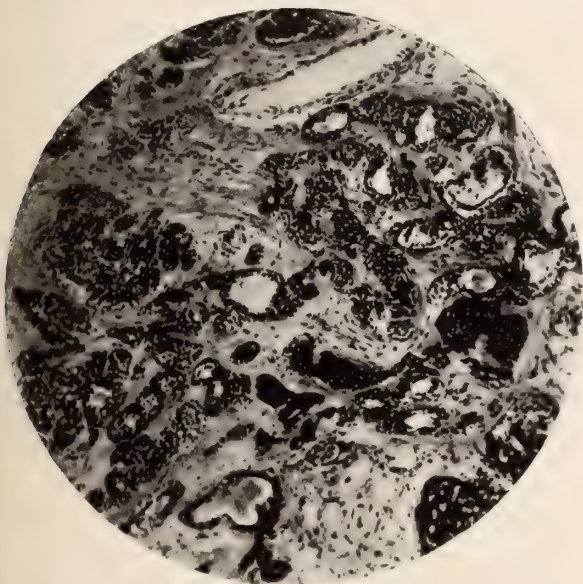


Fig. 3. Magnification 100. Showing the large proportion of embryonal glandular tissue in portions of the growth.

slight amount of tinnitus remaining at the time when last seen, about three weeks subsequently.

The tumor on gross section appeared to be studded with small, white, fibrous granules of cartilage.

It was submitted to Dr. Archibald Murray, who prepared the slides from which the photomicrographs were made. Dr. Murray pronounces the tumor a teratoma.

The presence of cartilage and myxomatous tissue and abortive glands makes the diagnosis probable. The tumor contains a large amount of glandular tissue of an abortive type.

The vessel walls show arteriosclerosis and hyaline degeneration. There is fibrous tissue in places, while scattered throughout are irregular masses of myxomatous tissue.

A number of pathologists to whom microscopic slides of the growth have been submitted have held various opinions of its proper nomenclature.

Thus, two pathologists have after examination named the tumor, one calling it endothelioma, the other teratoma.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

STATED MEETING, MAY 19, 1903.

The President, CHARLES N. COX, M.D., in the Chair.

There were about 175 members present.

The meeting was called to order and the minutes of the previous meeting read and approved.

REPORT OF COUNCIL.

The following candidates for membership have been accepted by the Council:

Gaetano Botano, Univ. of Naples, 1899.

John J. Wagner, Jefferson, 1897.

Edward J. McEntee, P. & S., 1901.

Peter A. Keil, L. I. C. H., 1902.

Adolph F. Konthe, L. I. C. H., 1902.

APPLICATIONS FOR MEMBERSHIP.

Applications for membership have been received from the following:

E. W. Russell, Seventy-first Street and Fifteenth Avenue, Bath Beach, P. & S., 1891. Proposed by Membership Committee; seconded by T. B. Hegeman.

E. G. Van Orsdell, 750 McDonough St., Albany Med. Coll., 1902. Proposed by W. B. Chase; seconded by C. Chase.

F. J. Vose, 1050 Greene Ave. Proposed by J. Fuhs; seconded by G. R. Butler.

V. S. Pier, P. & S., 1900. Brooklyn Hospital. Proposed by J. E. Jennings; seconded by H. A. Fairbairn.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the Council were declared, by the President, elected to active membership:

J. E. Blake, P. & S., 1898.

G. W. Vandergrift, P. & S., 1895.

A. W. Sully, Bellevue, 1891.

E. C. Brennand, P. & S., 1895.

The President announced the following deaths since the last meeting:

James A. Roche, L. I. C. H., 1890, died May 3, 1903, member from 1891 to 1895.

John Mulholland, P. & S., 1869, died May 18, 1903, member from 1872 to 1891.

SCIENTIFIC PROGRAM.

Stereopticon Demonstration of the Surgical Treatment of Congenital Cleft Palate, with Exhibition of Patients. By Truman W. Brophy, M.D., D.D.S., LL.D., of Chicago, Ill.

EXECUTIVE SESSION.

The President announced that the bill exempting the Library Building of the Society from taxation had been signed by the Governor. In making the announcement the President stated that he wished personally and on behalf of the Society to thank Senator McCabe and Dr. Bristow, President State Medical Society, for their efforts in helping to secure this legislation.

Dr. Fairbairn moved a vote of thanks to Dr. McCabe, and that a committee to consist of the President, Secretary and Chairman of the Board of Trustees be appointed to draw up fitting resolutions, and that same be engrossed and presented to Dr. McCabe.

Dr. Fairbairn moved a vote of thanks to Dr. Bristow for his zealous work in behalf of the same measure. Seconded and carried.

A motion was made that a vote of thanks be tendered to Dr. Brophy for his courtesy in being present and addressing the Society. Seconded and unanimously carried.

Adjourned, 10.45.

WM. S. HUBBARD, Sec.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

STATED MEETING, APRIL 21, 1903.

The President, CHAS. N. COX, M.D., in the Chair.

Ectopic Pregnancy. BY WALTER B. CHASE, M.D.

DISCUSSION.

DR. J. W. HYDE: When we are confronted with a case of ruptured tubal pregnancy it is of great importance to decide promptly whether it is a rupture into the abdominal cavity or into the broad ligament.

Death is more imminent from shock and collapse in the cases of abdominal hemorrhage. Here the blood is disseminated throughout the abdomen to a greater or less extent and bimanual examination and palpation are not always satisfactory. The pain also is not so intense in this variety of rupture. When the rupture occurs into the broad ligament the pain is sudden and always intense, and examination reveals the firm, circumscribed tumor in the pelvis.

The two forms are not difficult to differentiate, but of vast importance. The former cases require immediate operative care, without attempted removal of the patient, unless hospital facilities are near at hand. The latter cases are generally not so urgent but that opportunity is afforded for selection of best surroundings and assistance.

A bloody discharge from the vagina does not necessarily follow a tubal pregnancy. I think such a discharge is governed somewhat by the locality of the imprisoned ovum, whether it is in the distal or proximal portion of the tube. *Oliver* states that a fecundated ovum may develop in some structure in the pelvis outside of the uterus and may even arrive at maturity without exciting any symptoms different from an ordinary pregnancy, there being throughout this period complete amenorrhea; nevertheless presence of the vaginal flow is so common in these cases as to be ordinarily considered one of the characteristic signs of tubal pregnancy, and it may occur as early as the 20th day after impregnation.

Some recent investigations in regard to extra-uterine pregnancy by so distinguished a scholar as Frankenthal are interesting to us. He claims that in the human female impregnation occurs normally in the Fallopian tubes; and he asserts that "the ovum is impermeable after it has passed

the outer third of the tube, so could not be impregnated later."

If this is so we are surprised at the small ratio of ectopic pregnancy, for we know that tubal diseases exist and are indeed very common, and may disturb the free passage of the ovum in the tube.

We are aware of the fact that occasionally we meet with cases of ectopic pregnancy where no evidence exists of any previous disease of the tubes, nevertheless the law of cause and effect leads us to believe that there must be some deviation from normality in the tissues of the tubes in the majority of cases.

Tubal disease may be caused by traumatism, sepsis or infection.

The effect of venereal disease upon the generative organs of women is well understood by the profession. The exanthemata are also believed by some to produce serious uterine and tubal conditions which later develop; this is supposed to be especially true in cases of scarlet fever in young girls who have inherited a strumous habit; often such conditions are latent until aroused into activity by the approach of puberty—then the trouble may be almost perennial.

Why should the Eustachian tube be affected—oftentimes to the destruction of its function—and not the Fallopian tube likewise?

The histological elements are the same—mucous membranes on a basement membrane and glandular structures rich in capillaries. The situation only is changed. There is no sound argument why the poison should have a selective affinity for some organs and yet pass by others of the same histological structure.

As to the treatment of all cases of ectopic pregnancy, I should say operate as soon as the diagnosis is satisfactorily clear, which, as Dr. Chase has indicated in his paper, may often happen prior to the rupture. These are the more fortunate cases and reflect special credit on the surgeon. I should always operate by the abdominal route.

DR. J. C. MACVITT: The specimen that was passed around a little while ago was removed about two hours ago at St. Mary's Hospital by Dr. John D. Sullivan. I had the good fortune to be present when the case was brought in, and upon the Doctor's request I made an examination (he had already made a diagnosis of possible extrauterine fetation with rupture). I had a most excellent opportunity to make a diagnosis—better than he, because he had made his diagnosis without the patient being under an anesthetic, and when I made mine she was completely so. I found

little difficulty in detecting a globular mass *retro-uteri* and a thickened and softened tube.

Now this condition of enlarged and softened tube can be due to many causes, as you know, and with the history that the Doctor gave me of rupture, I ventured the opinion that the condition was either one of extrauterine pregnancy or a rupture due to some other cause.

The history is very brief. The Doctor was called in suddenly from the street while making his rounds, to a house where he found a woman suffering excruciating pain and with a blanched countenance. She had menstruated on the 25th of March—the menstruation for April had not taken place. From the condition of shock and the pain in the pelvic region, the Doctor was justified in making a diagnosis of rupture and advised removal to the hospital. The specimen, as you will see there, will admit of two interpretations. You will observe the thickened condition of the fimbriated extremity of the tube. Now you could very well argue, with the history of sudden pain and shock and exsanguinated appearance, that there was a tubal abortion. In the vast majority of tubal pregnancies you will find that conception takes place at the outer third of the ampulla, and Boldt reports a case where in operating for some other cause, he found the fetus extending from the fimbriated extremity partly into the abdomen, showing that these tubal pregnancies absolutely do take place.

In this case there was a twisted condition of the ovary. There was no free blood in the pelvic cavity, hence the supposition is that the pain was due to a sudden twist of the ovary, because in a torsion of the ovary you get pain, and oftentimes of a very severe character, accompanied by shock. So that pain was either due to a tubal abortion or a twisted pedicle of the ovarian cyst.

The difficulty of recognizing tubal pregnancy in its early stages is a very difficult matter indeed. I have seen a great number of cases, and but two which were diagnosed before rupture. But the point to the general practitioner is this: that he has not the experience in making bimanual examinations which is requisite, and it requires a man with considerable experience to make a bimanual and detect an enlarged tube. The ordinary practitioner has not got that acumen. Now what is left for him to do. He is very rarely called upon to treat a case of ectopic gestation until there is a rupture or commencing rupture, where he will have an acute pain, shock and hemorrhage as symptom.

In a paper I presented to the Gynecological So-

ciety in 1895. I took the ground then, which, to my gratification, has been recognized by men high in the profession since, regarding the active treatment of shock under these conditions. You are called in to see a patient suffering from shock. You suspect from the history of the case that it is one due to rupture of a tube—ectopic gestation. Your first impulse when you find a patient in this condition is to use your hypodermic with some cardiac stimulant. You are very apt to use a diffusible stimulant: whiskey, ammonia, digitalis or sparteine. Now I maintain you do absolutely the contrary to what you should in these cases. Here you have vessels that are open and bleeding, you stimulate the heart to propel more blood to these vessels which you want closed. What are you to do, then, if you can not use heart stimulants in a case of this kind? I suggested at that time that you use opium as a cerebrospinal sedative, and in that way quiet the heart's action, and by lessening the heart's action you give a chance for coagulæ to form in the open vessels. The only stimulant I would advise in conditions of this kind is strychnine as a nerve stimulant, with counter irritation to the extremities to excite peripheral circulation and do away with the proximal as much as you can.

In the hemorrhagic flows during the presence of tubal pregnancy decidual epithelia can be detected by the microscope, but I doubt the presence of chorionic villi, as the chorion is a covering of the ovum, and in the cases under discussion the impregnated ovum does not reach the interior of the uterus at all.

The size of the uterus in ectopic gestation is not of so much importance. That has been alluded to by Drs. Chase and Baldwin. You always have an enlargement of the uterus up to about the third month. After the third month, when the child is viable and the pregnancy goes on, the uterus does not continue to enlarge in the same ratio, but for the first three months there is a gradual enlargement; but in the absence of this enlargement, there is invariably a softened condition, and that should attract your attention more than the size of the uterus. The classical symptoms of pregnancy are almost invariably present with the exception of the menstrual flow. That, as you know, is always irregular.

As to the causation of ectopic gestation. You all know that in the past it has been considered due to pelvic diseases, to old inflammatory adhesions or infections, but that theory has been relegated to the past. If you have a condition in which the lumen of the tube is closed by pelvic

adhesions, how are you going to have the spermatozoa migrate through the tube? You do not have such a condition existing. In these cases the tubes are nearly always patulous but convoluted. It is in the convoluted portion of the tube that the ovum will take up its lodgment, with the thickening of the lining membrane its progress is impeded and a permanent lodgment results.

Then another cause and a very frequent cause is a diverticulum in a tube; so pelvic adhesions or pelvic infiltration are not then causes of tubal gestation, but rather the tube is always open, and in that way permits the passage of the spermatozoa to the ovum.

In the diagnosis of rupture extreme pain and shock are always present.

Now, as to treatment. I believe it is the recognized theory of all men at the present day, when you find or make a diagnosis of ectopic, to operate, and to operate through the abdomen. The vaginal operation I believe to be unscientific, crude and incomplete—always incomplete in cases of this kind. Sometimes the pregnancy advances to an extent that it is necessary to drain through the vagina, because, owing to adhesions, you cannot always remove the placenta.

DR. J. O. POLAK: In regard to the etiology, I have an observation to make that may possibly bear out what Dr. MacEvitt has said. During the past three years I have had the good fortune to operate on three women who have had double tubal pregnancies. Two of these patients I had previously operated on for tubal rupture. The third case Dr. Boldt had operated on, but I had seen the operation. In all three of these cases the condition of the unaffected tube at the time of the first operation was that of non-inflammatory saccululation—the proximal portion of the tube being free and patent. The few adhesions that existed about these tubes were freed and the tubes were left, only to be subsequently the seat of tubal pregnancy.

There is one point in the diagnosis that might be impressed upon practitioners, *i.e.*, that we have warning symptoms in tubal pregnancy in a large number of cases, for not only is the menstrual history suggestive, but the relation of the pain to the metrorrhagia is significant. I do not think that it is possible for a woman to have a tubal gestation *without discomfort* in the *region of the fruit sac*, and it is not possible, as far as my experience goes, to have her show or spot without coincident pain in that region. This pain is paroxysmal, as Dr. Baldwin has called attention to, but besides that there is a feeling of discomfort,

and if an examination is made, the tenderness about the tumor is out of proportion to the tubal findings.

After rupture, one very important point has been omitted. This is the diffuse rigidity of the abdominal muscles which almost always comes on with the coincident rupture and the shock. It is not the localized tenderness of appendicitis, but a diffused muscular resistance. I think it is undoubtedly due to the sudden insult to the abdominal cavity, by the profuse flow of blood in the peritoneal cavity.

DR. C. JEWETT: The etiology of tubal pregnancy is entirely speculative, as presented by most writers. We know little about it. Sutton believes this accident happens most frequently in a normal tube. A recent writer holds that it is due in many cases to congenital anomalies of the tube. The relation of the exanthemata to the etiology of the diseased tubes is very difficult to estimate for the reason that almost every woman has had at least one of the exanthemata. We might almost as well refer the tubal disease to teething.

With reference to diagnosis, I agree with Dr. Baldwin that the symptoms laid down in the books are not reliable. Perhaps the most conspicuous evidence of ectopic gestation is the fact of a skipped period and irregular hemorrhage. The condition is very difficult sometimes to differentiate from dysmenorrhea, but neither the hemorrhage nor the pain of dysmenorrhea is of quite the same character as that which occurs in ectopic gestation.

It is difficult again to distinguish from abortion of a utero-gestation, but here the diagnosis is cleared up absolutely by examining for chorionic villi the material removed from the uterus.

Another condition which is difficult to distinguish from ectopic gestation is abscess of the ovary.

With reference to treatment the points made by Dr. MacEvitt are well taken, yet there are very many cases in which the patient could not be carried through the operation without the cardiac stimulants and normal saline injections to which he objects. They should be given just before the operation begins at a time when the bleeding points will be tied within a few minutes.

As to the necessity for operating in all cases our English friends object. They trust a certain portion of them to expectant measures. I am free to say I do not sympathize with that view. Most frequently the condition is a malignant one and demands operation. Exceptions are hematomas in the broad ligament or encysted in the peritoneum provided they give rise to no symptoms.

Rupture into the broad ligament, however, which has been assumed to be common, is rare. In many cases in which the pregnancy seems to be in the broad ligament, in which the whole tumor seems to be covered smoothly by peritoneum, a little pains and patience will soon succeed in liberating a gravid tube and bringing it into the abdominal incision. Intraligamentous rupture occurs very frequently. Kelly has called attention to this fact.

DR. W. B. CHASE: The scope of the discussion has proved to be considerably broader than the paper, taking up topics I purposely omitted in the paper. I do not think it expedient that I occupy your time in discussing them, particularly as a distinguished physician from a distant city has a paper for your consideration.

Regarding the statements made by Drs. Fowler and Polak, who take quite opposite views regarding the rigidity of the muscles in the presence of ectopic rupture, I can recall in my experience no case in which I have found rigidity of the muscle. The hemorrhage and shock present would tend to aid muscular relaxation.

Regarding Dr. MacEvitt's dwelling on one or two supposed errors of statement, which he thought he heard, but did not, I may say I made no allusion to the microscopic examination of the blood. He doubtless failed to note the amended title of my paper. I believe what I said about chorionic villi would be sustained by every pathologist present.

The purpose of my paper was to draw the special attention of general practitioners to this condition, so as to facilitate the making of a diagnosis, that valuable time should not be lost in submitting these patients to early operation. At the same time I am aware that the opportunity of making a diagnosis before rupture is not frequent.

THE BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, FEBRUARY 5, 1903.

The President, W. M. FRIEND, M.D., in the Chair.

PROGRAM.

DOUBLE CONGENITAL TALIPES EQUINO VARUS.

DR. J. B. BOGART reported a case showing result three months after Prof. Lorenz's bloodless operation.

S. S. H., age nine, admitted to the Methodist Episcopal Hospital November 9, 1902; double

congenital talipes equino varus. Operation by division of tendo Achilles and plantar incisions, in a Pennsylvania hospital at the age of three months without improvement.

On admission, patient is in good health and presents no other deformity than the talipes. Inversion and adduction are complete. The patient walks upon the dorsal surface of the ankles with the toes looking inward and the soles backward. The scars of the plantar (Phelps) incisions and ténotomies of the tendo Achilles are present. On November 11, under ether anesthesia with the assistance of Dr. A. H. Bogart and the House Staff, Dr. J. B. Bogart succeeded in completely reducing the deformity of both feet by forcible manipulations with the aid of an improvised twister consisting of a towel wrapped around the feet and the handle of a large and strong pair of bone forceps. The usual plaster of Paris dressings were applied over cotton and the extremities suspended by over-head weights and pulleys. The suspension, having been found extremely irksome to the patient, was discontinued.

Following operation, the patient—who is an extremely nervous boy—was at first very restless and greatly excited, and afterward, on the third day, had a number of convulsions. On the fifth day, the plaster of Paris bandages were divided for the relief of swelling of the toes and, on the following day, the remaining dressings were divided. This was followed by gradual subsidence of the swelling. On the ninth day after operation the casts were removed when blisters were found covering limited areas on the outer surface of both feet. Over the dorsum of the right foot a small superficial area of necrosis was present. Appropriate dressings and fresh casts were applied and the patient allowed to walk upon his feet two days later.

December 6th, 25 days after operation, he was discharged still wearing the casts. He reported to the hospital for renewal of the casts at intervals of two weeks until about four weeks ago, when the casts were omitted altogether and he was fitted with a pair of shoes and permitted to return home, with instructions to report to the hospital.

When last seen, four weeks ago, he walked readily, stepping squarely upon the soles of his feet and maintained a proper degree of abduction.

The chief points of interest in this case are: (1) Successful reduction of extreme deformity, by manipulation alone, at the age of nine after the failure of a cutting operation at the age of

three months. (2) Superficial necrosis following operation resulting, as demonstrated by Prof. Lorenz at his recent clinic at the Kings County Hospital, not from direct pressure upon the necrosed area but from anemia produced by moderate pressure on the surrounding surface and demonstrating the necessity for cutting a window completely through the plaster and deeper dressings over the instep and dorsal surface of the foot immediately following the application of the dressings. (3) The excellent result, the patient without any artificial support other than a pair of shoes walking with a proper degree of abduction squarely upon the soles of his feet less than two months after operation.

Discussion.

DR. G. R. FOWLER referred to the possibility of being compelled to remove the astragali in cases of this kind, referring, of course, to the difficulties which appeared to be in the way of restoration in this particular case. This operation of removal of the astragalus is scarcely warranted at the present time in view of the success achieved by this method of forcible restoration and by the Phelps method of open incision, and particularly by the method more recently introduced by Mr. Ogston of Aberdeen, who advises removing the interior of the cuboid first, and then that of the astragalus if necessary, leaving a portion of the shell intact. Forcible restoration is then made, the shell simply being crushed into the position necessary in order to permit the restoration of an approximation, at least, of the normal shape of the foot. The speaker had not performed this operation as yet, but it appealed to him as being much preferable to removal of a wedge shaped portion of the tarsus; certainly it appears more rational than excision of the astragalus. The result in Dr. Bogart's case is most excellent. It is an extraordinarily successful issue without a cutting operation.

EXCISION OF THE KNEE FOR TUBERCULOSIS: RESULT NINE MONTHS AFTER OPERATION.

DR. J. B. BOGART reported a case with the following history:

W. N. C., age forty-six, steam fitter, who had previously enjoyed good health. Had an attack of rheumatism which began about November 1st, 1901, and lasted about four weeks. This was followed by a sore throat which was also diagnosed as rheumatic.

About the latter part of December his left knee became slightly swollen and painful. This condition persisted with slight intermissions, the pain and swelling gradually increasing and being accompanied by flexion of the joint, until about the 1st of April, 1902, when Drs. Frank E. Wilson and Geo. A. Williams aspirated and drew off about half an ounce of serous fluid. On May 5th, 1902, he was first seen by the speaker in consultation with Drs. Wilson and Williams at which time he was greatly reduced in weight, nervous and anemic. The joint was swollen and tender with about 45 degrees of flexion. Motion was practically eliminated and areas of fluctuation were present. Any attempt at motion was extremely painful. A diagnosis of tuberculosis was made and operation advised. He entered the Bushwick Hospital May 8th, and on the 10th, with the assistance of Drs. Williams and Schelling, the joint was excised, removing in addition to the synovial membrane and ligaments about one-quarter of an inch of the head of the tibia and one-half an inch of the articular surface of the femur. Rubber drainage tubes were inserted, the capsule sutured with chromicized catgut and the skin with silkworm gut. A copious dressing was applied with plaster of Paris over all, extending from toes to groin. The drainage tubes were removed at the first dressing, four weeks later, and the patient discharged from the hospital at the end of two months from the date of operation, union throughout being by first intention.

Since leaving the hospital he has been about on crutches and has resorted to hot douching and massage to restore the function of the ankle joint, which had become partly ankylosed and to restore the vitality of the tissues of the limb. For the past three months he has been permitted to use his leg in walking.

At the operation the synovial membrane, crucial ligaments, semi-lunar cartilages and, to a considerable degree, the articular surfaces of both the femur and tibia were found to be involved in the tubercular process.

CEREBRAL HEMORRHAGE; OPERATION; RECOVERY.

DR. ARTHUR H. BOGART presented a boy, age fourteen years, with the following history:

Family and previous personal history are negative, except for some ocular trouble resulting in the loss of the right eye and partial blindness with pupillary adhesions in the left.

Present trouble: Patient first came under observation at the Methodist Hospital, September

3rd, 1902, with a history of having fallen from his bicycle to the pavement striking on the left side of the head. When found he was unconscious, but one hour later he could be roused to answer questions unintelligently. Examination revealed multiple abrasions about the face, laceration of upper lip, and the loss of several teeth; pupillary findings were negative on account of previous disease. Patient was irritable and noisy during the day. September 4th, patient remained quiet during the night, and in the morning seemed more rational, answering questions much more intelligently. He continued to improve rapidly in every respect until September 6th when he was quite rational and complained chiefly of a dull pain in the head. On that date he was taken home. After having been home for two days his mother noticed that he could not move the right arm and that the right side of the face was drawn, also occasional twitching of the muscles of the right arm and side of the face. Examination revealed at this time, five days after the injury, a complete paralysis of the right arm, partial paralysis of the leg on the same side, and also of the face, with loss of sensation in the arm. Patient was perfectly conscious and rational most of the time, but occasionally making eccentric and irrational remarks, and complaining of headache.

A diagnosis of cerebral compression was made, due to intercranial hemorrhage, and the localizing symptoms being so exact it was thought wise to attempt its relief, which was done as follows: A large horse-shoe flap was turned back from the left parietal region, and a trephine opening made over the fissure of Rolando exposing the dura which was found bulging and congested. The opening was then enlarged posteriorly and the dura incised which permitted the evacuation of a medium-sized blood clot and a small quantity of lacerated brain tissue by saline irrigation. The hemorrhage which was quite active was controlled by the introduction of an iodoform gauze drain and the wound partly closed with silk-worm gut sutures. He recovered promptly from the anesthetic, and suffered but little shock as a result of the operation.

September 10th: Has been quiet and slept most of the day, is stupid and cannot articulate, does not recognize any one.

September 11: Somewhat more restless, still stupid and rather irritable when roused, unable to move the arm.

September 12th: Was very restless, continually trying to remove the dressings but will remain quiet when ordered. There is marked nystagmus

in the left eye. He recognized his mother but cannot articulate. He endeavors to communicate his ideas by printing on the pillow with his finger; general condition good.

September 14th: Considerably brighter, understands what is said, and signifies it by saying yes or no, can move forearm slightly but cannot move the fingers, is much more quiet.

September 16th: Improvement in motion of arm and mental condition is marked, slight motion in the fingers, is very quiet and understands and obeys orders.

September 17th: Dressing sutures and drain removed, wound in excellent condition, mental condition still improving, can articulate a few words consisting of one syllable.

September 19th: Motion of arm and fingers stronger, sensation normal. He can speak several words plainly but hesitates at each syllable, is apparently unable to recall or to articulate certain words, in which cases he uses writing as a substitute, recognizes the word immediately it is suggested. He is evidently suffering from a motor aphasia, the lesion being situated in the third left frontal convolution of Broca.

September 22: Wound entirely healed. There is a pulsating area at the site of the trephine opening about the size of a fifty-cent piece. Patient can say any word which he wishes or knows, and can read print which his defective eye-sight can distinguish. Nystagmus is still present. His mental condition is very satisfactory. He can move the arm to a horizontal position, separate the fingers, flex and extend them, and flex the forearm on the arm. From this time to the present patient has continued to improve, and within the past month has returned to school where he shows no evidence of having lost any of his former intelligence.

THE SKIN AS A SOURCE OF WOUND INFECTION.

BY GEORGE RYERSON FOWLER, M.D.

Discussion.

DR. W. F. CAMPBELL said that in the number of clinics which he saw last summer in Europe, the most orderly, systematic and exact work was that done in the clinic of Kocher, and he was especially interested in the method which he employed in the disinfection of the hands. He had abolished the use of germicides altogether. His method consisted in washing the hands in warm water with a brush for 10 minutes, and then dip-

ping them in alcohol and mopping them off thoroughly with a piece of gauze, and then rinsing in sterile water. He makes this interesting observation: he noted among the nurses who were employed in the operating room a number of cases of albuminuria, which he attributed to the frequent use of bichlorid from absorption in the skin, so that from that observation he has abolished the use of bichlorid altogether in his clinic.

Dr. Campbell thought that the infection that comes from the edges of the skin wound, in a practical way, is rather problematical. Of course, there are bacteria there, but it seems to him the tissues are usually able to take care of them.

He stated that since the use of rubber gloves has come in vogue, it seems to him that stitch abscesses are very much less frequent than they used to be. He agreed that he had not seen as many in his own experience; and while it is true that the punch holes in a rubber glove are probably worse than no glove at all, yet he thinks we are able to keep the gloves in such a condition that they are of great practical use.

DR. A. T. BRISTOW could not agree with Dr. Fowler on the subject of rubber gloves. In the first place he thought that while it is quite true that the puncture of a rubber glove is not a desirable thing, he was equally sure that the chances of infection through a small puncture in a rubber glove are not near as great as through the bare hands—no matter what course of treatment you put the hands through.

The various experiments Dr. Fowler has detailed here show one thing certainly, and that is, no matter what disinfection you use, you can never be sure your hands are sterile; therefore that the use of rubber gloves will better accomplish the object in view. As to puncture, we must learn not to puncture the gloves. The matter of tactile sensibility with reference to the gloves is largely a matter of practice. When he first began to use them they were a disadvantage, but he soon found that his facility increased, until now, so far as facility in operation is concerned, they are a matter of indifference.

In the first place a glove should be well fitted, and in the second place, of course, it goes without saying, that it should be warp tight—there should be no punctures. There is a glove on the market which has a slight roughness on the palmar surface. This is of great advantage in handling tissues. During the past week he did an end to end anastomosis in a case of femoral hernia without the use of the Murphy button or any apparatus. He wore gloves during the

operation and did it without being aware of any disadvantage connected with the gloves.

Certainly if one has to open an appendical abscess, it is of great importance to use the gloves. Kocher said two years ago, it was more important for the surgeon to take care of his hands between operations than just previous to operation. In other words he advocated the use of a protecting glove at all times. If this is true of the ordinary soiling of the hand in every day life, it is doubly true of the soiling which takes place in work about infected cavities, such as a pus cavity, appendical abscess or tubercular process. He believed it more safe to keep the hands sterile by the use of protecting gloves than by the use of any system of cleansing however elaborate. He said that he should continue to wear rubber gloves until he can see some reason to abandon them.

DR. H. B. DELATOUR said that the reference to the possibility of infection of the knife by the skin edges is not borne out by practice, for if there was so great danger of carrying the infection in that way, we would be almost constantly seeing septic wounds, and such we know is not the case.

The speaker believes in the thorough disinfection of the skin, and recognizes the skin as a source of infection, but he does not believe that from the edges of the wound we can infect our wounds to any very great extent.

As to the matter of disinfecting the hands and wearing rubber gloves, he agreed with Dr. Fowler. He did not believe in the rubber glove for ordinary work. He had used them for a certain length of time, but found that he could not work so rapidly, and was compelled to handle the tissues more when he wore the gloves than with bare hands. He believes that in septic cases, we should use the gloves to protect our hands from infection, and to keep them in a condition which renders them more easily sterilized for future work; but he thinks that in the ordinary clean cases we need not cover our hands with gloves after the ordinary methods of preparation have been employed. In his experience the gloves certainly had hindered him in his work, and he believed that he never had a greater percentage of clean wounds while using the gloves.

He could not see what the gloves have to do with stitch abscesses. There are two things he had noticed in going from one clinic to another and watching the different operators, that he believed are a source of a great deal of trouble. One is the matter of handling gowns and sup-

posed sterile sheets by the operator. We know after the operator puts on his sterilized gown he walks around the room, runs up against the table and one thing and another, and during the operation we frequently see operators wipe their hands on their gowns. He believed this a source of infection. These gowns are no longer sterile, and many wounds are infected in that way. Another thing is dragging the wound apart by retractors and blunt dissection. He believed the cleaner cut we make the safer we are. A clean cut carefully carried out with the knife is more protection to the patient than any kind of chemical disinfection or rubber glove protection. Besides these the time the tissues are exposed and the number of hands in the wound are important elements. We must also remember that the more we operate the more expert we become and the less damage we do to the tissues.

DR. W. F. CAMPBELL thought that the stitch abscess has a very practical relation to the bare hands. The handling of the sutures by the bare hands of the operator and the assistants, who hand the sutures to the operator, will certainly wipe off a lot of bacteria on these sutures, and they will certainly be introduced into the wound.

DR. W. C. WOOD said that laboratory experiments would make us all pessimistic if they were not controlled by experience. The point of variance between the two is simply this: in the human organism we have a vital resisting force that is not taken into account in laboratory work. As mentioned in the paper this evening this lessens the value of all laboratory experimentation.

There were two points to speak of: In the first place one of the great sources of infection is an altogether unnecessary handling of the tissues. The surgeon can do a patella operation or radical cure of hernia without soiling his hands with blood and without touching any portion of the ligature or suture that is to remain in the wound. If a person can do an operation of that sort without soiling his hands, certainly his hands have not infected that patient. He believed we should take more care in the handling of tissues.

He also thought that we have altogether too many assistants. In private work this winter, where assistants are necessarily more limited, he had been struck with the uniformity of non-infection. In these cases, some of them being emergency cases, where no time for preparation of the skin was permitted, he had used the somewhat crude and harsh method of disinfecting the patient's skin by means of chloride of lime

and washing soda, and in quite a large number by the use of that method and the plan of the non-handling of tissues and structures and ligatures by any one's hands. He had been surprised with the excellent clinical results.

Concerning the use of rubber gloves, he agreed with Dr. Fowler—he had no use for them—not at least for the operator. When it comes to the operator himself using them the disadvantages more than counterbalance the possible gain. It may be well for the assistants to wear them.

DR. W. S. SIMMONS said that the rubber glove question had appealed to him. Personally, when he put on a glove he did not feel as well as without it, although a good many men had told him that their tactile sense is in no way destroyed by rubber gloves. He had seen these same gentlemen, when they strike some difficulty, take the gloves off and operate without them.

Suture material goes through several hands before it gets to the operator. Whether handled by the naked hand or glove, he thought, makes no difference. He thought a hand fairly well sterilized and kept sterile, being immersed carefully and the blood kept free from it by bichloride solution, is much safer than a rubber glove, which is not so treated, and is used in handling other structures besides the wound tissues itself, such as towels and instruments exposed to the air for some time. He believed a rubber glove would become just as quickly infected as the hand does from that source.

Concerning abdominal operations: he had seen the peritoneum exposed to many infections which it succeeded in overcoming. He had seen perspiration dropped in the abdominal cavity and eye glasses dropped in, and no inflammation take place.

His personal feeling about rubber gloves is, that he could not feel as well with them on as without them.

DR. G. R. FOWLER said in conclusion: As to the matter of stitch abscesses, Dr. Campbell is certainly wrong in his assumption that the use of rubber gloves has lessened the number of stitch abscesses. If this were true, why is it that stitch abscesses have lessened in the practice of surgeons who do not wear rubber gloves? Years ago, when we used suture material that could be only imperfectly sterilized, and cat-gut, which formed a culture medium in the skin for the germs to proliferate in, stitch abscesses were frequent—universally so—and now, since we use silk-worm gut, which is easily sterilized, and avoid cat-gut and similar material, they are less

frequent, as we would naturally expect them to be.

As to the matter of laboratory experiments and vital resistance, he had tried to make that clear. It is very true the conditions are not the same. The object of the laboratory work is to ascertain what has done the damage in the tissues.

He believed the observation made by Dr. Wood that "too many cooks spoil the broth," is eminently true. He thought we have too many assistants in hospital work. He believed the method of the French surgeons who place their instruments within reach, is to be preferred to the plan of having a nurse to hand instruments. Clinical results and laboratory experiments all go to show that there are innumerable sources of infection. He believed that failure to make adequate and proper precautionary preparation of the instruments and suture materials and ligature materials goes a much longer way toward producing infection in the fatty tissue than the division of the fatty lobules.

He wished to say a good word for cotton gloves. He believed that they are to some extent a protection. As long as the gloves are kept dry, or if wet with the bichloride solution, he believed they will lessen to a considerable extent the probabilities of infecting the tissues that are handled by the fingers. In Kocher's clinic the assistants wore cotton gloves. Kocher does not wear them, but requires his assistants to do so in order that they may tie ligatures without cutting their fingers. Kocher refrains from tying ligatures in order to save his fingers. Therefore, he dispenses with gloves.

The speaker has abandoned irrigation almost entirely, and conceives it to be the height of folly to undertake to irrigate away from the fatty layer whatever loose fat or infection may be there. Whatever can be removed from this layer can be removed by smooth dry sponging, but irrigation is certainly out of the question in this connection.

The use of the cold bichloride solution to occasionally dip the hands in, is a practical way of solving this question of getting rid of bacteria which come from the depths to the surface. As soon as one is trained in this particular and can remember to occasionally immerse the hands, it will become second nature to him. Personally, he had basins of bichloride placed near both his assistants and himself, so that they can dip the hands to wash off blood and redisinfect them frequently.

This method of staining the hands with the permanganate and bichloride solution, has shown,

so far as simple clinical experience can show, that it has advantages. He had used it now for a number of years, and was sure that the stay of patients in the hospital is rather shorter, the healing process going on more rapidly than it did before. This alone is a sufficient inducement to continue its use. Its use was begun before there was any feeling against operating with the bare hands, and was originally intended to disinfect the depths of the skin, as well as to protect the hands from septic influences. It has since transpired that the perspiration from the skin itself and which forces from the glandular apparatus of the latter infectious agents is sufficiently inhibited by this stain, and, as remarked in the paper, it has been repeatedly noted during operations in hot weather, when all the rest of the body was perspiring, the hands have retained a smooth, dry and glossy appearance.

THE BROOKLYN PATHOLOGICAL SOCIETY.

HENRY G. WEBSTER, M.D., Editor.

The 439th Regular Meeting of this Society was held on the evening of Thursday, March 12, 1903, at 1313 Bedford avenue. The President, Dr. Archibald Murray, was in the chair, and the following program was presented:

Paper, "Gastric Hemorrhage," Dr. Jacob Fuhs; "Hematemesis Following Appendicectomy;" Report of Case, Specimen and Slides, Dr. G. R. Fowler; "Perforating Ulcers of Stomach and Cæcum," "Ulcerating Carcinoma of Stomach," "Diffuse Carcinomatous Infiltration of Stomach," "Carbolic Acid Poisoning," "Specimens and Histories: Museum of M. E. Hospital," Dr. Phillip Smith; "Arsenical Poisoning," "Corrosive Sublimate Poisoning," "Histories and Slides," Dr. Archibald Murray.

Discussion.

DR. H. A. FAIRBAIRN: I wish to say simply a word to emphasize the fact that gastric hemorrhage may occur in cirrhosis of the liver, although the cirrhosis may not have advanced very far. It has been shown that, in the early stages of cirrhosis, the circulation in the portal vein being very slow is so interfered with, that a varicose condition of the veins occurs in the lower portion of the œsophagus and in the walls of the stomach.

Some years ago the ambulance at St. John's Hospital was summoned suddenly to a private residence on Pacific street by the announcement

that a man there was suffering with violent pulmonary hemorrhage. The gentleman was brought to the hospital. I arrived there a short time afterward, and there was a disposition to confirm the diagnosis of pulmonary hemorrhage. When I saw him the hemorrhage had ceased. Examination of the patient showed a moderate condition of cirrhosis of the liver; there was some blood in the stomach, but certainly no pulmonary condition to account for that hemorrhage.

The old gentleman (he was 68) died; the case fell into the hands of the pathologists; the stomach was removed; there were found extravasation of blood into the walls of the stomach and a varicose condition of the veins. I think that is an important fact for us to bear in mind, that when a man presents the incipient stages of cirrhosis of the liver, we are to be prepared for gastric hemorrhage.

DR. A. T. BRISTOW: The surgical treatment of gastric ulcer may be for the relief of different phases of the disease; first, hemorrhage; second, perforation with its sequelæ; third, for the cure of obstinate ulcer which has resisted all medical treatment. Surgical relief for hemorrhage may be demanded in very acute cases when a vessel of considerable size has been eroded, giving rise to more or less profuse arterial hemorrhage, as evidenced by the expulsion of quantities of blood of a bright color, little altered by prolonged contact with the gastric juice. The indications for surgical intervention may be the acute anæmia, or the character of the vomited blood.

It is not always easy to decide whether or not to operate for the relief of acute hemorrhage. The operation is, of itself, full of peril from shock, as are all operations in the upper abdomen, and if much blood has been lost, it is questionable whether the patient would survive the additional shock of operation and the manipulations necessary to the discovery and suture of the ulcer. I believe that the cases in which the surgeon is justified in interfering, are very few indeed, although the general rule in surgical practice is a good one, that we should cut down on a bleeding point and tie the vessel.

It is to be remembered that as the blood pressure falls on account of the hemorrhage, there is a tendency for the bleeding to cease. Personally I have never seen a case of hemorrhage from gastric ulcer which required operative interference, because of the acute character of the bleeding alone. There is, however, a second class of cases in which an intense anæmia may supervene, due to continued, although small, hemorrhages. In

such cases it is much easier to decide upon the necessity of operation than in the more acute cases.

I should, in the first class of cases, restrict operation to those in which the arterial character of the blood and repeated vomiting of blood in large quantities pointed out the necessity of a desperate measure. I do not, however, believe that many of these cases will be saved by operation. Primary operations will, therefore, be rare. Secondary operations performed on patients with chronic ulcer and continued moderate bleedings offer more hope of success.

Perforation, with its sequelæ, requires operation, for whatever the risk of the surgical procedure, we know without the aid of surgery that the patient must die. When the perforation is in the anterior wall, much, of course, as to the future of the case will depend on the amount of food in the stomach at the time, for be it remembered that there are cases, in which either hemorrhage or perforation is the first symptom of gastric ulcer. In these cases the preferable method, if the condition of the patient permits, is complete excision of the ulcer with closure of the resulting gap. Not infrequently the perforation is on the posterior surface, and it will then, of course, be necessary to open the lesser peritoneum and get at the ulcer by this route.

Perforation in the posterior wall is frequently preceded by the occurrence of adhesions and the formation of a subphrenic abscess, which will require evacuation. Gastric ulcers have a predilection for the pyloric end of the stomach. I have seen such an ulcer, which was at least as large as our old-fashioned trade dollar. Ulcers in this situation are quite commonly followed by pyloric stenosis with dilatation. To relieve this complication we have two procedures, between which we may choose—the Heinecke-Mikulicz operation of pyloro-plasty, and the various gastro-duodenostomies. After an experience with both, I believe that the latter proceeding is the best, for the following reasons: As a result of the deposit of cicatricial tissue in and about the pylorus, it does not easily lend itself to a plastic operation, and we have no security that after our operation contraction will not recur. Of the gastro-duodenostomies those of Von Hacker and Roux are to be preferred.

The operation of gastro-duodenostomy is a grave one, as are all operations in the upper abdomen. I have seen a patient who was able to walk into the anæsthetizing room, and who did not in the course of the operation lose an ounce of blood,

die on the wheeler litter on her way to her room. Therefore, it is not to be lightly undertaken, particularly in debilitated patients, and friends should be informed of this fact.

A gastro-duodenostomy is often the best treatment for an obstinate chronic gastric ulcer, which has refused treatment, and in some instances better, because safer, than excision of the ulcer, which seems at first sight a more surgical proceeding in that it removes the source of the trouble. The difficulty with the excision is chiefly in the location of the ulcer, and the gastro-duodenostomy relieves this condition by giving the injured part complete rest by diverting the gastric contents.

Finally if there is any branch of surgery in which the greatest conservatism is necessary, it is in the surgery of the stomach. It is, as I have already stated, a very easy thing to kill a patient with injudicious treatment here, and I want to call attention to this particularly with relation to the ill advisedness of hurried operations to relieve gastric hemorrhage. Personally I have never seen a case of gastric hemorrhage which did not finally yield to proper medical treatment—Adrenalin, ice, etc., the familiar remedies which we all know. The shock of an exploratory operation is very great, and these patients are always extremely debilitated, so that we should be very sure that it is necessary to take the desperate chances of operating before we decide upon the operation of searching for and tying the bleeding point.

DR. G. R. FOWLER: The operation of gastro-enterostomy, the first two or three attempts at which were mentioned by Dr. Bristow, has been open to the objection, in spite of the many improvements in the operation of late years, that the contents of the duodenum found their way into the stomach, and there gave rise to persistent vomiting, and in the course of this vomiting a portion of the contents of the efferent loop, or the leading away loop, also found their way into the stomach, and as a result of this the so-called vicious circle or *circulus viciosus* is established.

In order to overcome this the operation of posterior gastroenterostomy was first devised, inasmuch as it occurred very frequently in the cases of anterior gastro-enterostomy. Following this, came the suggestion of Roux to make a Y-shaped attachment to the efferent loop, and even in spite of this the *circulus viciosus* occurred. There is the case of a German physician reported, who for a gastrectasis had five different operations performed before he finally succeeded in getting rid of the *circulus viciosus*—this includes the original

operation of the attempt to correct the gastrectasis itself. Then finally the operation of Doyen was instituted, and in this operation the leading-to loop of the intestine is divided after an entero-enterostomy has been performed; the leading-to and leading-away loop being connected four or five inches below the point where the anastomosis with the stomach is made, thereby permitting the biliary secretions to pass directly into the leading-away loop rather than into the stomach, and dividing the afferent loop, that is the leading-to loop, between the point of entero-enterostomy and gastro-enterostomy, and turning in the divided ends and sewing them together, so that there is actually no communication between the duodenum and the stomach whatever. Everything must pass through the enter-enterostomy. This was Doyen's operation, and has succeeded very well in preventing the *circulus viciosus*, but the objection to Doyen's operation is that it prolongs the procedure very greatly, since it makes it necessary to first do a gastro-enterostomy, and then an entero-enterostomy, and then a division of the afferent loop and the turning in of both ends. In patients who are almost exsanguinated from gastric hemorrhage, or who are in the last stages of cachexia from cancer, the operation is scarcely admissible.

My own suggestion, and which I have carried out upon seven patients, consists in applying a circumclusion ligature of metal (silver wire). I have used it in cases of carcinoma, otherwise inoperable, which would probably not live long enough to suffer any inconvenience from the corrosion of the wire in situ. This wire loop is so placed as to substitute Doyen's method of preventing communication between the afferent loop and the stomach itself. In future I would use either gold or platinum wire in cases of gastric hemorrhage or for gastrectasis. I may say that in none of the cases in which this circumclusion ligature has been applied has there been any vomiting of material from the duodenum. I ought to say, however, in justice to other operators, that in a letter received from Mr. Mayo Robson, to whom I sent a reprint on this subject, he stated that he had done recently or within comparatively recent years upwards of 40 cases of gastro-enterostomy by the posterior method, and that he had not lost a single case from the *circulus viciosus*. I do not know what they may have died of—I do not presume he means to say he had a run of 40 consecutive cases without death. This may prove to be an improvement in the method. It certainly saves the time of turning in the ends and render-

ing secure the afferent loop in the method proposed by Doyen, and this portion of the operation was devised to substitute that of Doyen.

If the Murphy button is used for the gastro-enterostomy and for the entero-enterostomy, if it were possible to rely on the Murphy button, or some such mechanical device, there is no doubt the operation could be shortened by a combination of these methods, viz: a gastro-enterostomy with the Murphy button and an entero-enterostomy with the Murphy button and the use of a metallic circumclusion ligature for the purpose of preventing the *circulus viciosus*—that would be the ideal method. It would not take long to perform, and patients suffering from shock would leave the table in better condition than if kept there for an hour or an hour and a half, as they are according to present methods. I feel like saying what the Italian surgeon said about the Murphy button, that "We put in the button and trust to the Lord for the rest."

PAPER: HEMATEMESIS FOLLOWING APPENDICECTOMY; REPORT OF CASE.

By DR. G. R. FOWLER.

Discussion.

DR. J. M. VAN COTT: There are several interesting facts in this autopsy. By request of the friends we did not examine the heart. We only opened the abdomen, and that shuts out certain possibilities in the endocardium. There may have been some endocardial or myocardial condition, which would explain the fact of these occurrences in the stomach. Otherwise it is somewhat difficult to understand the course of the embolism from the vessels of the appendix. That is an interesting anatomical condition.

With regard to these foci, there can be no doubt in my mind that they are due to sepsis. There is only one question which might arise, and that Dr. Murray has alluded to in the form of a question as to whether there were present any micro-organisms. It is an unfortunate fact that the piece of the specimen was stained with hæmatoxylin rather than blue, which would show the organisms, if present. However, there can be no question at all that the occurrences in the blood, the occurrence of solution of continuity in all the structures were not due to post-mortem digestion. These ulcers occurred on the lesser curvature. The stomach did not contain enough blood to account for its having been in contact with the less-

er curvature of the stomach, and there is no post-mortem change, which will account for any alterations due to necrosis or coagulation of material. It seems, as Dr. Fowler has already stated, that the micro-chemical reactions with the stain in this specimen are of extreme importance.

That the emboli, particularly the one in the branch of the vessel cut off from the two vessels and the one beyond it, in the Y-shaped vessels, must have antedated the clot of blood seen in the vessel is evident for the reason that it stains differently—it was broken down—whereas the clots in the two branches and in the main branch are well preserved with corpuscular elements, which have taken the characteristic stain for hæmoglobin. Getting over this point makes it certain that this material in the vessel did certainly come from some other place than the stomach. The findings in that necrotic mass have no resemblance to anything in the stomach. It must be something which migrated to this point. I think the position that some septic influence, whether microbes or a toxæmia, was the cause of the condition is not open to question, because it is known that some toxins have the effect of coagulating albuminous materials, and that may account for the clot.

On the other hand it is known they have the faculty of dissolving cell elements, which accounts for the general changes seen in these cells. This was one of the most interesting cases I have ever seen, and it seems to prove that the stomach may be the source of great danger in certain cases of appendicitis, where there is no general sepsis, but where there is some vicissitude of circulation elements, which have lodged in the stomach where the mucosa is so tender, and, as Dr. Fuhs has stated, is readily the source of hemorrhage.

SPECIMENS AND HISTORIES; MUSEUM OF M. E. HOSPITAL, VIZ.:

Perforating Ulcers of Stomach; Carcinoma of Stomach; Diffuse Carcinomatous Infiltration of Stomach; Stomach Corroded by Carbolic Acid Poisoning. By Dr. Philip M. Smith.

Presentation of microscopic slides:

(1) Coagulation Necrosis of Stomach Mucosa due to Corrosive Sublimate Poisoning.

(2) Coagulation Necrosis of Stomach Mucosa due to Arsenic Poisoning.

DR. A. MURRAY: I have a couple of slides here, one to show corrosive sublimate poisoning, and the other arsenical.

The history of the corrosive sublimate case is

as follows: This man was being given a bichloride bath, and there was a glass of saturated bichloride that the nurse put down on the side of the bath tub. He took hold of it and drank the contents of the glass. He lived for five or six hours after that, so the bichloride had a good chance to soak in, and the specimen is a good example of what corrosive sublimate will do in the way of coagulation necrosis. The other slide shows the entire mucosa necrotic, due to arsenic poisoning.

BROOKLYN MEDICAL SOCIETY.

The eighty-second regular meeting of the Brooklyn Medical Society was held Friday, April 19, 1903.

The President, DR. ALGERNON T. BRISTOW, in the Chair.

DR. BRISTOW introduced Dr. Archibald Murray, who gave the third of the series of preliminary demonstrations. He gave a lantern-slide lecture on "The Histology and Bacteriology of the Blood," explaining the uses of several instruments for counting the corpuscles, and for the estimating of the amount of hemoglobin; also the methods for the detection of human blood. He also showed the action of Ehrlich's triacid reaction on the blood and also of other reactions and their value in the diagnosis of certain conditions.

CLINICAL SECTION.

DR. L. GRANT BALDWIN presented a specimen of a pus ovary with a normal tube and a cystic ovary with a hydrosalpinx. He also presented two photographs, one taken before, and the other after operation, of a case of complete prosidentia in a woman fifty years old.

DR. SIDNEY H. GARDINER presented a specimen of an ovarian cystoma which he had removed from a maiden forty years old, who presented herself six weeks previously, complaining of bronchitis and intestinal dyspepsia. An examination revealed a tumor containing two gallons of fluid of which she was entirely ignorant. The tumor was multilocular and pedunculated and contained in the largest cyst a grayish fluid of the sp. gr. of 1010, with a large percentage of albumin. The opposite ovary presented evidences of fatty degeneration and was removed with several nodular growths from the fundus of the uterus. A clubbed-shaped appendix was also removed. The patient was up and dressed in twenty-four days after operation and recovery was uneventful, except for a slight albuminuria which cleared up under treatment.

DR. E. W. WRIGHT read a five-minute paper on "Ophthalmic Dynamics." The importance of the recognition of the close relationship between the forces governing the eyes and the forces of the general nervous system, was the theme. He demonstrated this by means of a chart.

DR. A. T. BRISTOW presented an appendix which he had recently removed.

PROGRAM.

"Cancer of the Cervix of the Uterus," Dr. W. B. Brinsmade.

DR. BRINSMADE took a very pessimistic view of the prognosis in these cases.

Discussion.

DR. BALDWIN said that he would not be too hasty in concluding that these cases were inoperable. He regarded the operation as justifiable when the uterus was comparatively movable and one broad ligament involved. Where there was a good deal of breaking down and the uterus was fixed, he considered them inoperable. Curette and cautery hastened the death of patient and he considered them useful only for the control of hemorrhage. Pain, hemorrhage and loss of flesh were the symptoms to rely on, but hemorrhage prolonged and profuse was the one symptom which was indicative.

DR. JOHN C. MACEVITT paid a stirring tribute to the memory of the late Dr. John Byrne, the noted gynecologist. He said that Dr. Byrne was a pioneer in the treatment of cancer of the uterus. That his statistical reports, based on twenty years' experience, were a decided acquisition to the literature on cancer and a boon to suffering humanity. Dr. MacEvitt spoke of the excellent results achieved by Dr. Byrne by the use of his cautery and the operation for the high amputation of the cervix which was designed by him, was an achievement of which the profession might be proud. Dr. MacEvitt then gave some statistics of his own which went to prove that these cases must not always be considered as hopeless.

DR. WALTER B. CHASE also took a very optimistic view of the subject, and said that in certain cases much could be accomplished by operation. He said that he had practised Dr. Byrne's operation for the high amputation with much success.

DR. WESTBROOK said that we should not be too hopeless in these cases; much being accomplished, and many times life being prolonged by timely operation.

DR. JAMES C. KENNEDY reported a case on which he operated for cancer, in which after operation the pathologist reported the absence of any cancerous tissue, but which came back to him a few years later and presented a cauliflower growth.

DR. MURRAY spoke briefly on the pathology of cancer.

ADMISSIONS TO MEMBERSHIP.

Drs. R. M. Elliott, C. Giovince, W. F. Campbell, Martin Bodkin, William E. Butler, J. P. Warbasse, S. C. Pettit, E. M. Bullwinkle, A. Hayman.

On motion the necessary appropriation was made for the supply of blanks for the use of Dr. Schroeder and the Historical Committee.

On motion Drs. Bell and Ingalls were reimbursed for expenditures that they had made for the Society.

HUGH EDWARD ROGERS, M.D.,
Recording Secretary.

NINTH REGULAR MEETING OF THE SECTION ON OPHTHALMOLOGY, HELD ON APRIL 28, 1903.

Chairman, DR. J. SCOTT WOOD, in the Chair.

DR. DAVID W. MEYER, in presenting a case of argyrosis, said: "This case represents the use and abuse of nitrate of silver. The patient, an Italian, about a year ago had sent to him, from Italy, a bottle of medicine to be dropped into the conjunctiva daily, and continued its use for seven months. From his description I believe it to have been a strong solution of silver nitrate which has produced a case of argyria of an extreme type."

Dr. Meyer next presented a man who five years ago was burned very severely in his right eye by muriatic acid. The local physician treated him for relief of burning sensation and pain, probably using cocaine. Four days after, went to Manhattan Eye and Ear Hospital. No hope was extended as to saving the eye. He remained one week and then returned home and was under care of family physician more than a year, after which patient came under my observation. I found that patient was unable to open the eye and forced attempts showed that the ocular and palpebral conjunctivæ were firmly attached, both on the upper and lower lids. The eye-ball was almost immovable. What could be seen of the cornea showed a thick fleshy mass adherent and highly vascular over the anterior surface. A very thin edge of cornea was visible at the temporal border. Also there can be seen a thin line of

non-adherent conjunctiva and white sclera. Within the last three years have performed about fifteen operations, two under ether, the others under cocaine. The eye is now freely movable, the cornea has cleared about one-half and the eye is fairly presentable and will be more so. Am hoping for even better results. The case is shown to advocate persistence in an apparently hopeless case.

The Chairman, Dr. Wood, remarked, on Dr. Meyer's first case, that it illustrated the injudicious use of nitrate of silver in giving it to a patient to drop into the eyes.

Dr. Price has used grafts in cases of symblepharon, but cannot claim more than fair results. He has used the mucous membrane from the mouth of the human subject but not from the lower animals. There is a limit to the amount of graft which can be utilized. In most cases sloughing of the edges of grafts reduces the process practically to Thiersch's grafting. He anchors grafts by means of sutures and restrains them by lead and rubber sheeting. Dr. Reynolds spoke of an animal tissue being used in such cases. Dr. Meyer said that success in these cases was due to persistence in treatment, doing only small amounts at each operation. Dr. Price reported a case of septic panophthalmitis occurring soon after confinement. Dr. Price saw the patient a week after in a condition of septic charoiditis. Perforation followed soon after. A synovitis of one knee-joint coexisted. He did not enucleate, but he had intended to do an evisceration. He has given up enucleation in panophthalmitis. He does not do a neurectomy.

The Chairman, Dr. Wood, had noted the extensive chemosis which had occurred in his cases of evisceration. Dr. Price finds Mule's operations usually are followed by sloughing which he attributes to the prothetic body being too large. In a case under the care of Dr. Oatman paraffin was used, sloughing set in for a while and continued till the prothetic mass was reduced in amount, after which repair took place and a good stump resulted. He favors the use of paraffin in similar cases.

JAMES W. INGALLS.

Dr. Oatman, in "Carcinoma of the Choroid" in the *American Journal of the Medical Sciences*, states that: "The time from the first eye symptoms until vision is destroyed, varies between two and eight weeks. The average is about five weeks. The average duration of life is six and one-half months."

J. W. I.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed BROOKLYN MEDICAL JOURNAL, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, JULY, 1903.

TAXATION OF THE MEDICAL LIBRARY.

The announcement by the Board of Assessors, that it plans to contest the legality of the special act just passed by the legislature exempting the Library of the Medical Society of the County of Kings from taxation, will be received by the medical profession of this city with something more than surprise.

Should the Board win in the proposed suit, a strange miscarriage of justice would result to an organization which justly claims to be purely educational in its aims.

The Library claims no right to exceptional treatment in the remission of taxes. The law was passed by the legislature to right an evident wrong. The library, maintained by the Society, is of benefit not only to physicians, and through them to the public at large, but is likewise accessible to any citizen, public or private.

The Court which some time ago held the Library to be taxable property rendered its opinion that the Society is a club and that it is a trades union, which it is not.

The *Brooklyn Daily Eagle* of Saturday, June 6, 1903, in an editorial entitled "No Tax for Our Medical Society," generously says: "Its home is not a club house as the Appellate Court once wrongly said. It is less like a club house than the regimental armory across the street and the church around the corner. The chief purpose in erecting the present building was to provide a safe place for the library of the Society. This is one of the largest and best medical libraries in the country and it is as free to persons who have occasion to make use of it as the Carnegie libraries will be. It is of professional advantage, but of public advantage, too. The association derives no income from rentals and other outside sources. It is not a social club. It is not a

secret order. The object of its existence is the betterment of the public health. Its library should not be taxed."

The Society of which the Library is the home was organized in 1822. Its incorporation in later years was in response to the declaration of the Legislature, that, in order to protect the public from quacks, charlatans and illegal practitioners, it must be incorporated. The taxes on the old building on Bridge street were paid, for years, while organizations employed in work of an exactly similar character in New York had their taxes remitted. The efforts made to obtain the treatment accorded to similar institutions, at the time of removal to larger and more heavily taxable quarters, were unsuccessful, because of the decision of the Appellate Court, as stated above. The Legislature, however, recognizing the injustice put upon the Library in its enforced continuance as taxable property, passed the special law which exempted it, together with a Manhattan non-medical organization, from further taxes. The decision of the Board of Assessors to contest this law will, we believe, find few supporters, either medical or laymen, the opinion, even of large taxpayers, seeming to be unanimous that the efforts of the Board, in the case of the Library of the Medical Society of the County of Kings, are ill-directed.

The Society would welcome a visit from any or all the members of the Board, in order that a personal inspection might aid them in determining whether the Library should be taxed.

A NATIONAL BUREAU OF MEDICINES AND FOODS.

The efforts being made by physicians toward the formation of a National Bureau of Medicines and Foods should receive more than passing attention.

The lack of a standard in the United States for pharmaceutical preparations has long been condoned; and to the integrity of certain pharmaceutical houses, rather than to any compulsory standard established by the United States Pharmacopeia, is due the excellence of a large part of the drugs in common use.

The present state of affairs, fair as it may be, is weak in the fact that while the preparation of a given drug by a given pharmaceutical house may be excellent, and perhaps even excelling the required standard, the preparation of the same drug made by some other firm may differ from it considerably in pharmaceutical standard. This

irregularity in standard might be overcome if the same, and preferably the best, preparation could always be employed.

Practical difficulties which appear insurmountable are, however, daily encountered by the prescriber. For example, the physician can not be expected to know with absolute certainty, which preparation of every drug has the highest standard of excellence. If reports are to be believed he cannot be sure that he always obtains the particular preparation his prescription calls for.

While there is nothing but condemnation for the practice of substituting drugs one can also conceive that the cost to the consumer must be increased by the necessity of the druggist having to keep in stock preparations of the same drug of several different houses; and that the integrity of the druggist is often taxed, is evident from frequent falls from grace reported.

The process of manufacture of fluid and solid extracts is often differently carried out by different houses. Tinctures have been found to vary as much as seventy *per cent.* These differences are not infrequently so great that the same prescription, compounded from drugs made by different manufacturers, may vary greatly in appearance or even in therapeutic effects.

Worse than this are the occasionally discouraging results of analyses of drugs bought in open market. Thus aristol may be bought containing sixty-five *per cent.* of free alkali; phenacetine, ninety *per cent.* of acetanilid; hyoscyamine, totally pure atropine.

No other instances need be cited to prove the desirability of fixed standards of drugs.

After years of effort this important desideratum begins to seem possible of accomplishment. A friendly footing has been established with certain leading pharmaceutical houses which will cooperate with the Bureau in fixing and maintaining standards of identity, purity, quality and strength.

The Bureau will also retain the right to determine which pharmaceutical houses may enjoy membership and what particular products of these houses may receive the commendation and seal of the Bureau. The complete plan of the proposed organization is outlined in the present (July) issue of *The Druggists' Circular* and may be read with profit by physicians. The chairman of the committee is Dr. H. H. Rusby of New York and the secretary is Dr. Philip Mills Jones of San Francisco, to whom, with others, much credit for the work thus far accomplished is due.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor, before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

Dr. Jonathan Wright announces the removal of his office to 44 West 49th St., Manhattan.

Dr. Henry A. Alderton, of 142 Clinton Street, will be absent from the city during July and August. The greater part of the time will be spent in study in Berlin, Vienna, and probably Paris.

Dr. R. C. F. Combes will be absent from the city all summer, at Cottage No. 5, Long Beach, L. I.

Dr. George W. Brush, of Ocean Avenue, Flatbush, left June 10 for a ten weeks' trip in the West. His wife accompanied him. Their itinerary includes Chicago, New Mexico, Grand Canyon of Arizona, thence to Pasadena, Cal., where they remain a month. From the latter place they will journey up the coast by slow stages to Vancouver, and from there through the Canadian Rockies, arriving home about September 1st.

Dr. Homer L. Bartlett, of Flatbush, who has been seriously ill at his home for several weeks, is reported to be in a convalescent condition. The JOURNAL extends its wishes for a speedy recovery.

Dr. Joshua Van Cott, of Henry Street, has recently been appointed visiting physician to the newly incorporated Brooklyn Heights Seminary for young ladies.

Dr. William A. Jewett has had assigned to him all cases of typhoid fever reported to the Health Department of this borough. He is expected to determine, if possible, the sources of contagion, whether within or without this borough; whether the source can be traced to water, milk, shell fish, or any other facts which may add to the knowledge of this disease, and particularly as it applies to the occurrence of typhoid fever within this borough.

The Spring Meeting of the Associated Physicians of Long Island was held at Southampton, Saturday, June 13. The audience room of the Southampton Art Gallery proved an attractive

place of assembly. Papers were read by Drs. George McNaughton of Brooklyn and Arthur H. Terry of Patchogue.

Dr. H. Beekman Delatour, with his wife, are at present travelling abroad. They recently registered at the Paris "Eagle Bureau."

Dr. Silas C. Blaisdell narrowly escaped serious injury by the blowing up of his automobile in front of his residence. The Doctor had just alighted from his machine when the explosion occurred.

Dr. John F. Golding, of 363 Franklin Avenue, died recently of heart disease, after an illness of some years. Dr. Golding was born in Brooklyn, October 8, 1854, and was graduated from P. & S. He was in practice twenty-seven years, seventeen of which were spent in Brooklyn. He held the professorship of Toxicology and of the Theory and Practice of Pharmacy in the Brooklyn College of Pharmacy, and was also a member of the Kings County Medical Society.

Dr. Julius C. Bierwirth has removed from 137 Montague Street to 253 Henry, corner Joralemon.

The news editor would esteem it a favor if members of the Medical Society who intend to go out of town for the summer would kindly mail him notices of their summer plans.

At a meeting of the International Executive Committee of the Pan-American Medical Congress, held April 1st, 1903, it was decided to accept the proposal of the Argentine Republic to hold the Fourth Pan-American Medical Congress in Buenos Aires in 1905, instead of 1903 as had been announced in their invitation of February, 1901.

This was considered by the Committee much more advantageous for the meeting, as it has long since been realized that it would have been impossible to have had a good representation of the delegates from this and other countries, had the convention been held there in June of this year.

The anti-diphtheria serum discovered by Professor Roux, of the Pasteur Institute, is now being made up in the form of lozenges for use during convalescence. The professor had observed that bacilli found in the mouths of patients several weeks after recovery were liable to convey the disease to others. The lozenges overcome this and also render preventive inoculation unnecessary.—*Exch.*

The State Board of Regents has appointed the following members of the Board of Medical Examiners representing the several State societies:

State Medical Society—Dr. William Warren Potter of Buffalo, Dr. William S. Ely of Rochester and Dr. Maurice J. Lewi of New York.

Homeopathic Medical Society—Dr. John M. Lee of Rochester, Dr. J. Willis Condee of Syracuse and Dr. George E. Gorham of Albany.

Eclectic Medical Society—Dr. Lee H. Smith of Buffalo, Dr. O. W. Sutton of Bath and Dr. M. H. Nichols of Worcester.

Dr. William M. S. Fiske of Brooklyn was appointed an examiner for the homeopaths in place of Dr. William Morris Butler of Brooklyn, resigned.

Dr. Frank French of Rochester and Dr. O. J. Gross of Schenectady were reappointed State Dental Society examiners, and Dr. A. R. Cooke of Syracuse was appointed in place of the late Dr. S. B. Palmer of Syracuse.

Supt. William Mabon of Bellevue Hospital recently announced that in the future priests desiring to administer the last sacraments to injured people will be allowed to ride with patients in the ambulances of Bellevue and Allied Hospitals.

An agreement has been made between the authorities of Roosevelt Hospital and the trustees of Columbia University for the endowment of four beds at the hospital, to be known as the Abraham Jacobi beds in honor of Dr. Jacobi, emeritus professor of the diseases of children at the College of Physicians and Surgeons. The beds are to take the place of the Abraham Jacobi ward, which is to be discontinued.

Dr. Perc, of Marburg, Germany, addressed a brilliant gathering of physicians the other day on the healing properties of bee stings in cases of rheumatism of the joints and muscles. The professor pointed out that it has been known from time immemorial as a cure among the poorer classes of people who have no faith in medical science. He has tested it thoroughly and proved its efficiency in 500 cases. If a patient is suffering from rheumatism the stung part does not swell at first, nor until the bee poison is frequently introduced. Then the rheumatic pain gradually vanishes. Dr. Perc allows his patients to be stung at first by a few bees and then gradually increases the number. In one sitting he allows seventy bees to sting the patient. He described the case of a woman who suffered excruciating tortures from rheumatism. In the course of her cure she was stung 6,952 times and this resulted in a complete cure.

A suit brought by Mrs. Virginia Pleasant, a colored woman, against John W. Keller, former Commissioner of Charities, to recover \$25,000

for the death of her husband, Cornelius Pleasant, was dismissed yesterday by Supreme Court Justice Davis when the plaintiff's case had been heard. Mrs. Pleasant alleged that her husband, who died on April 26, 1900, in the insane ward of Bellevue Hospital, with broken ribs and other injuries, was maltreated and abused by the hospital attendants and that Mr. Keller as Commissioner was directly liable, as the attendants were under his control.

A new laboratory building, 49 feet front and 32 feet deep, of brick and marble, is to be built, at a cost of \$5,000, for the Children's Hospital on Randall's Island.

A new reception building with facades of brick, terra cotta and bluestone, is to be built on Blackwell's Island, at a cost of \$15,000, as an annex to the City Hospital.

A few days ago Florence Nightingale entered upon her eighty-third year. Miss Nightingale has long lived in seclusion. The results of her enterprise in the hospitals of Scutari are matters of history. It was through her that the nursing of the sick by women of education came to stay.

Twenty-three of the forty-five States were represented at the first annual conference of State and national public health officers held at Washington, D. C., recently, for which Surgeon-General Wyman of the Marine Hospital Service issued a call recently, in accordance with the provisions of the act of Congress approved last year. This act provides that there shall be at least one annual conference of the health officers. The chief business was the adoption of this resolution: "Whereas, The conference of the State Boards of Health of the United States with the public health and Marine Hospital Service, having confidence in the earnest efforts and ability of the Governor and State Board of Health of the State of California, acting in harmony with the Bureau of Public Health and Marine Hospital Service, to thoroughly eradicate bubonic plague heretofore existing in the city of San Francisco, do resolve that in the judgment of this conference, so long as the present effective work is continued, there is no need for quarantine restrictions of travel or traffic to or from that State."

Dr. Ernst J. Lederle, president of the Board of Health, was the guest at the last meeting of the Columbia University Chemical Society, at Prof. Chandler's house, 51 East Fifty-fourth street. Officers and students of the School of Chemistry, a number of graduates and many representatives of the various student organizations, were invited to meet Dr. Lederle.

To the April number of the *Apothecary*, Dr. Albert H. Brundage contributes an interesting editorial on "The Future of Pharmacy." Some months ago Dr. Brundage was unanimously elected president of the New York State Board of Pharmacy.

On Thursday afternoon, April 16, 1903, the annual meeting of the Long Island Library Club was held in the auditorium of the society and was followed by an inspection of the building. About 75 members were present. The scientific program included an address by Mr. Albert T. Huntington on "The Library of the Medical Society of the County of Kings" (published in the April number of the *Library Journal*) and a discussion on "Impressions of the Atlantic City Meeting," led by Miss J. A. Rathbone, Miss M. R. Haines and Mr. E. Stevens. The reading of annual reports and election of officers followed.

The sixth annual meeting of the National Association of Medical Librarians was held Saturday, May 16, 1903, as reported in last month's issue. A large number of librarians and physicians representing the medical libraries throughout the country assembled at the Library of the Medical Society of the County of Kings in the morning, and after an inspection of the building, were entertained at luncheon at the Union League Club by the Brooklyn members, Dr. Wm. Browning, Dr. J. M. Winfield and Mr. A. T. Huntington. The scientific session was held in the afternoon at the New York Academy of Medicine, the president, Dr. Wm. Osler, in the chair. Papers and discussions were contributed by Mr. C. P. Fisher, of Philadelphia; Dr. T. G. Lee, of Minneapolis; Mrs. G. W. Myers and Dr. E. H. Brigham, of Boston; Mr. J. S. Brownne and Dr. W. S. Dennett, of New York City; Mr. A. T. Huntington, of Brooklyn, and others. The officers elected for the ensuing year are as follows:

President, Dr. Wm. Osler, of Baltimore; Vice-President, Dr. Abraham Jacobi, of New York city; Secretary, Mr. Albert T. Huntington, of Brooklyn; Treasurer, Dr. George D. Hersey, of Providence, R. I.; Executive Committee, Mr. John S. Brownne, of New York city; Mr. Charles P. Fisher, of Philadelphia; Dr. James M. Winfield, of Brooklyn. Manager of Exchange, Miss M. C. Noyes, of Baltimore.

The meeting adjourned to meet in June, 1904, at Atlantic City, N. J. A full report of the proceedings of the meeting will be published in the *Medical Library and Historical Journal* for July, 1903.

PROGRESS IN SURGERY.

BY GEORGE RYERSON FOWLER, M.D.

KEHR: A Case of Extensive Resection of the Choledochic and Hepatic Duct for Cancer of the Choledochus, with Excision of the Gall-bladder and Hepatico-duodenostomy (*Müchener Med. Wochenschrift*, 1903, No. 3).

Palliative operations (anastomosis between the gall-bladder or the choledochus and the bowel) have been performed several times. Radical procedure has been attempted only once, and that unsuccessfully (by Czerney), prior to Kehr's case.

The patient, a male, fifty-three years old, was affected with chronic and very intense and increasing jaundice, colicky pains were absent. The liver and gall-bladder were enlarged and free from pain and tenderness. The symptoms pointed to closure of the common duct by tumor pressure; either this or by chronic interstitial pancreatitis. The operation was preceded by gastric irrigation, and by rectal injections of calcium chlorid, as a prophylactic against cholemic hemorrhage. Upon opening the abdomen there was revealed a well circumscribed cancer of the common and hepatic duct. This could be easily lifted from the greatly over-filled portal vein. The common duct was narrowed below the neoplasm, and distended above. After resection of 3 cm. of the choledochus, including the growth, it was found impossible to suture the stenosed distal to the dilated proximal portion. The stump of the common duct was therefore ligated and the hepatic duct implanted into the duodenum. A broad strip of omentum was sutured over the place of implantation to strengthen the latter. The enlarged gall-bladder, together with the resected choledochus, was then removed. It contained a gall-stone as large as a hazelnut. The space was tamponed. Some vomiting of bile occurred after the operation, which ceased after irrigation of the stomach and placing the patient upon his right side. The patient recovered.

BÉGONIN: Appendicitis and Oxyuria (*Revue Française de Méd. et Chirg.*, 1902, IV.).

He records the case of a female patient, twenty-four years old, who had suffered several attacks of pain in the right iliac fossa. The diagnosis was uncertain, and rested between chronic recurring appendicitis and a right-sided adnexal affection. The operation revealed a right cystic ovary, which was removed. The appendix appeared from its exterior normal, al-

though somewhat stiff. After resection the lumen of the organ was found to contain fifteen living oxyures, or common thread worms, a part of which were convoluted; the mucous membrane was somewhat ulcerated.

This case is unique in its way, and the presence of the thread worms will reasonably explain the appendical symptoms. On the other hand, it is probably true that these intestinal parasites take a very slight part in the etiology of appendicitis.

M. GUILLOT: Gastrostomy by Means of Torsion of Mucous Membrane (*Gaz. des Hôpitaux*, 1903, No. 143).

A completely closing gastrostomical fistula is obtained by Dr. Guillot, by first attaching the stomach to the abdominal wall and then dissecting the serosa and muscularis from the mucosa for a space sufficient to obtain an inverted funnel-shaped portion of the latter, which is then twisted upon itself. The steps of the operation are as follows: An incision is made through the left rectus muscle parallel with the ribs. The stomach is attached to the abdominal wall by means of a double row of interrupted sutures. The first row of sutures engages the sero-muscular coats of the stomach and the parietal peritoneum and rectus. In the second row the gastric sero-muscular coats and the superficial fascia are engaged. The serous and muscular coats are now incised, and the mucous coat caught up by a hook forceps and drawn forward as much as possible, while by blunt dissection the mucosa is loosened at its base. This is easily accomplished, and without danger of impairing its nutrition. The tip of the cone of loosened mucosa is now drawn well forward and out of the wound, opened, and the edges of the opening secured with clamps. It is then twisted upon itself for 180 degrees. The edge of the opening is now sutured to that of the skin wound.

E. HAHN: The Surgical Treatment of Floating Kidney. (*Deutsche Zeitschrift für Chirurgie*, Vol. LXVII, p. 354.)

The surgical practitioner is greatly indebted to the late lamented Dr. Hahn, who died so early in his brilliant career, for the operation of nephropexy. The present paper is a condensed and exhaustive review and summary of the subject at the hands of one who was incomparably its master. Among the points covered is that which relates to the greater frequency of floating kidney in females, its preference for the right side, and the percentage of its occurrence. According to Hahn its most frequent cause is child-bearing. He believes that tight lacing is unimportant in its

etiology, since the Arabic women who do not wear corsets suffer frequently from movable kidney. The consequent disturbances due to the affection relate to flexion of the vessels and resulting disturbances of the circulation. To these are to be added ureteric flexions and the symptoms suggesting incarceration. Operative treatment is indicated in all cases in which palliation by means of a suitably applied bandage fails. Nephrectomy is never indicated. Its abandonment is based on the fact, in addition to other reasons, that out of 42 published operations of this kind, six patients died from uremia, due to the absence of the other kidney. Artificial fixation of the kidney by means of suturing was introduced into practice by Hahn and continues to be the method of choice. He calls attention to the fact that it is not necessary to fix the kidney at its normal situation. Experience teaches that it may be secured at a much lower point and still benefit may result from the operation. The disturbances incident to floating kidney are due to its mobility rather than to its abnormal location.

FERRIER: Pneumococcic Appendicitis. (*Société Med. des Hôpitaux*, October, 1902.)

The patient whose case is herewith reported suffered from a most severe croupous pneumonia; at no time during life were there present pronounced symptoms of appendicitis. Post mortem section revealed the appendix vermiformis to be enlarged, filled with pus; the mucous membrane was ulcerated. Both exudate and adhesions were absent. The pus contained pneumococci and bacteria coli.

Sevestre thereupon reported a case in which the pneumococcic appendicitis preceded the pneumonia. The patient, a child of four, suffered from the usual symptoms of appendicitis. An incision emptied a circumscribed sero-purulent collection which contained almost exclusively pneumococci. A typical pneumonia occurred during convalescence. Recovery followed.

PROGRESS IN ANATOMY.

BY WILLIAM FRANCIS CAMPBELL, M.D.

EFFECT OF FATIGUE ON THE NUCLEI OF VOLUNTARY MUSCLE CELLS.

Much original work has been done in ascertaining the effect of fatigue on the nerve cells, but similar effects on muscle cells have for the first time been exploited by P. K. Gilman (*The American Journal of Anatomy*) who has given an in-

teresting account of a number of experiments. His conclusions are as follows:

1. "The nuclei are shrunken and present a very irregular outline. This shrinkage and distortion increase with the length of the stimuli up to a certain point when no further visible change is shown, no matter how long and severe the fatiguing process."

2. "The nuclei of fatigued muscle cells are less densely granular and take stains less deeply than the nuclei of resting cells."

AN ANOMALOUS VENA CAVA INFERIOR.

Daniel G. Revell (*Proceedings of the Association of American Anatomists*) reports a case observed in the anatomical department of University of Toronto where the Vena Cava Inferior was absent excepting a slender vessel extending from the right common iliac vein to the right renal vein. There were two hepatic veins which passed through two openings in the diaphragm and opened separately into the heart.

CONGENITAL ABSENCE OF THE CLAVICLES.

Two cases of congenital absence of the clavicles are reported by Harvey M. Sherman (*American Medicine*.)

Case I.—That of a boy of three with marked evidences of rachitis. On the left side there could be felt only a rudimentary clavicle and only the sternal half of the bone on the right. The radiogram failed to show either of these as visible bones. The function of the shoulder joint was practically perfect. It was possible without pain or discomfort to bring the shoulders forward and touch them together under the chin.

Case II.—A girl of seven with well-marked rachitis. Examination failed to show even rudimentary clavicles. As in the previous case the shoulders can be made to touch each other under the chin without pain. There is no interference with the motion of the arms.

THE ANATOMY OF THE PERIRENAL FATTY TISSUE.

The existence of two distinct layers of fatty tissue surrounding the kidney, one the pararenal fat and the other the perirenal fatty capsule sometimes spoken of as Gerota's capsule, is commented upon by W. W. Keen (*American Medicine*). The author expresses surprise that these distinct layers of tissue are not alluded to in any of the modern works on anatomy or surgery and seems to have escaped the observations of both anatomists and surgeons.

A description of these two layers of fat will be found in a paper by Gerota in the *Arch. f. Anatomie*, Leipsic, 1895. It is a strange fact that these observations have not as yet been incorporated in any of the text-books of anatomy.

ANOMALIES OF THE PANCREAS.

Anomalies of the pancreas are rather rare but when present may prove of great importance to the clinician. G. F. Ruedigie (*Journal A. M. A.*) presents an interesting article on Accessory Pancreas with account of specimen found by Dr. LeCount in the course of an autopsy on the body of a young woman, an account of which is given as follows:

"The accessory pancreatic mass was located in the wall of the jejunum, about 15 cm. from the duodeno-jejunal junction. It presented itself as a small yellowish, slightly raised nodule elevated (at its thickest part) 5 mm. above the general level of the serosa; at its base it measured 17 by 22 mm. Sections show the nodule to be composed of pancreatic tissue, which is imbedded in the muscular coat of the intestine and in structure identical with normal pancreas; it contains typical islands of Langerhans. In the connective-tissue septa between the lobules are numerous small ducts, lined with a single layer of columnar epithelium, and here and there are bundles of smooth muscle fibers, ramifying through the gland. The ducts, studied in serial sections, are found to run toward the center of the nodule where they form a large duct which takes almost a direct course toward the mucosa and apparently empties into the intestine. The latter point, however, could not be demonstrated positively, because several sections from the region cut unsatisfactorily."

AN ESSAY UPON THE GENERAL PRINCIPLES OF PREVENTIVE MEDICINE,

BY W. WAYNE BABCOCK, M.D.,

Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia; Pathologist Kensington Hospital; Assistant Pathologist Philadelphia Hospital, etc.

Awarded the first prize of one thousand dollars in the competition instituted by The Maltine Company.

(Continued from p. 305.)

Steam.

This is one of the most efficient and generally useful of all artificial germicides. Sterilization entails the consumption of energy, and as steam contains relatively a much higher potential of energy in the form of latent heat than does boiling water

or heated air, it is a much more active sterilizing agent. To convert a given weight of water at the boiling-point into steam requires nearly one thousand times as much heat as is required to raise the temperature of water from 211° F. to 212° F. This great amount of latent heat is stored up in steam and liberated upon its condensation. From this it follows that to obtain the most efficient action of steam necessitates at least a partial condensation. Thus, if superheated steam be passed through bundles of fabrics, it will be found that the greatest action occurs in the interior of the bundles, where a partial condensation can take place, rather than upon the exterior, where fabrics are quickly raised to such a high temperature that almost no condensation occurs. For the same reason superheated steam which acts at a temperature far above its point of condensation, is relatively much less efficient than streaming saturated steam.

Saturated steam has a temperature corresponding to the pressure under which it is held, so that the slightest cooling will result in condensation. At the pressure of one atmosphere, for example, saturated steam has a temperature of 100° C. (212° F.), and the point of saturation varies with the pressure according to the table previously given. *Superheated steam* has a temperature exceeding that corresponding to the pressure at which it exists. It does not condense until it has cooled to the saturation point. It is obtained by heating saturated steam or by adding certain salts such as sodium chlorid, to the water in order to raise the temperature at which steam will be liberated. Saturated steam has relatively greater penetrative power and disinfectant action than has superheated steam. In condensing it imparts to the surrounding media a temperature above that at which it exists; for as it comes in contact or enters articles to be disinfected, the cooling produces a partial condensation, and the liberated *latent* heat is transferred to the material. The successive great reductions in volume resulting from the condensation attract more and more steam to the area, so that penetration through even large bundles of fabrics quickly takes place.

For the use of steam at high temperatures, forms of sterilizers capable of withstanding high pressure, known as *autoclaves* or *steam pressure sterilizers*, are employed. Any air remaining in such an apparatus greatly interferes with the action of the steam. To insure sterilization, therefore, it is essential that all air be first expelled, either by permitting the steam to escape for a considerable time before sealing the apparatus, or else by exhausting the chamber two or three times during the process of sterilization. If great care be not taken in this regard and to ensure sufficient circulation of the confined steam, the pressure sterilizer is apt to be untrustworthy. The method of intermitting the action of steam with the formation of partial vacuum is readily carried out by a simple condensing device, and greatly enhances the efficacy of the method.

Superheated steam does not moisten paper or

fabrics, and for this reason may be used to sterilize letters and the like. At the ordinary atmospheric pressure, streaming saturated steam rapidly destroys all pathogenic organisms and their spores, and, for general purposes, has been found the most convenient and efficient practical measure. For heavy work with limited space and with expert supervision the vacuum method with superheated steam is advantageous. Steaming steam tends to wet articles that are closely packed, while employment of the vacuum and of superheated steam prevents wetting.

COLD.

It has repeatedly been observed that cold does not destroy pathogenic bacteria, yet the number of microorganisms progressively diminish in frozen articles, indicating that cold is a slowly acting germicide as well as a disinfectant. Prudden found that bacilli of typhoid fever would withstand freezing for one hundred and three days, although the action of alternate freezing and thawing was found to be injurious to their growth.

Ravenel and McFadyen exposed various bacteria to the low temperature of liquid air (—190° C., —310° F.) for periods varying from a few hours to seven days, without destroying their viability. Portions of infected tissue from tuberculous lungs have been kept frozen for four months without destroying their property of infecting guinea-pigs. A few organisms are able to multiply at or below freezing temperature; thus, meats kept in cold storage may become moldy.

LIGHT.

The *ultra-violet rays* (actinic rays) from the sun or from electric light have a pronounced germicidal action, well marked in the case of the direct solar rays, requiring a much longer time for disinfectant action when diffuse; while the rays from the electric light are much less efficient. The direct sun rays are much more powerful than those from a 100 candle-power electric arc light at a distance of one meter. As the arc light is richer in actinic rays than is the incandescent light it is the more active. Clearness of the atmosphere, freedom from dust and fog, and the absence of any interposed transparent medium, as glass, which interferes with the transmission of ultra-violet rays, increases the action of light. The red and infra-violet rays possess little bactericidal value. The disinfectant action of light has been clearly demonstrated after the rays have penetrated clear water to the depth of at least 30 centimeters; so that it is evident that exposed water, perfectly clear and not of great depth, may be freed from pathogenic organisms by sunlight alone. The germicidal action seems to be due partially to changes in the medium involving its contained oxygen, but chiefly to a direct action of the actinia. Bacterial toxins are also rendered inert by light. It is evident, therefore, that sunlight will act chiefly as a surface

disinfectant of translucent or opaque bodies. Tubercle bacilli are quickly killed by exposure to the direct solar rays, the time varying, according to circumstances, from a few minutes to several hours; while the diffuse rays will destroy these organisms in from five to seven days, their virulence diminishing before their death (Koch). Practically all pathogenic bacteria and spores may be destroyed by a sufficiently prolonged exposure to the actinic solar rays.

ELECTRICITY.

It is extremely difficult to estimate the bactericidal action of electric currents, as it is practically impossible to apply them without inducing chemical changes in the surrounding media. These chemical substances frequently have a marked disinfectant action, but that of electric currents in themselves requires greater proof. Induced currents of from 10 to 20 amperes, acting upon bacteria inclosed in tubes of a diameter of 3.5 centimeters, were found by Spilke and Gallstein to kill microorganisms in one or more hours, and to restrain their growth if applied for shorter periods. It is probable that of itself electricity is at most a feeble bactericide.

DESICCATION.

Absolute dryness is probably destructive to all microorganisms and their spores, and the efficiency of dry heat as a disinfectant seems to depend in a large measure upon this action. The organisms of the colon group, such as *Spirillum cholerae*, *Bacillus typhosis* and *Bacillus coli* are more readily destroyed than those of tuberculosis and diphtheria or especially those forming spores. Koch found that the cholera spirillum was killed by drying three hours, if in thin layers; Rosenau, that the plague bacillus soon died in dry air at the temperature of the body, and Pfuhr that the bacillus of typhoid fever died after eight or ten weeks of drying. The bacteriologist finds it necessary to frequently transplant bacterial cultures to keep them from drying. The tubercle bacillus and spore forming organisms may withstand ordinary drying for months. Much depends upon the character and amount of the associated protecting material.

CHEMICAL AGENTS.

Gases.

Formaldehyde.—Formaldehyde, methylaldehyde or oxymethylene is a pungent irritating gas formed by oxidizing the vapors of methyl alcohol by passing them over incandescent platinum sponge or coke, the formula being $\text{CH}_3\text{OH} + \text{O} = \text{CH}_2\text{O} + \text{H}_2\text{O}$. Forty volumes per cent. is soluble in water, such a solution being sold under the trade names "formalin," "formal," "formol," and the like. If attempts be made to produce condensation or concentration it is prone to polymerize into *paraformaldehyde* (trioxy-

methylene or paraform, $\text{C}_3\text{H}_6\text{O}_3$) a white, solid substance, which when gently heated is reconverted into formaldehyde. The gas combines with albuminous substances, rendering them stable and incapable of gastric digestion, and this tendency to combine with organic compounds makes it a good deodorant. Ammonia neutralizes it and converts it into an inert compound.

Application.—Formaldehyde is the most efficient of the gaseous disinfectants at present known. It has, however, little penetrative power, and its action is, therefore, chiefly that of a surface disinfectant. It may be applied (1) as a *watery solution*, being active in 0.4 to 4 per cent. in water (1 to 10 per cent. of the commercial solution); (2) as a *spray* produced by projecting air or steam through a concentrated watery solution; (3) as a *gas* generated by (a) passing the vapor of the methyl alcohol over a heated platinum sponge in a special apparatus, (b) heating pastilles of paraform in a special lamp, (c) evaporating the gas from a watery solution by means of a special device or (d) the slow evaporation from sheets saturated with formaldehyde solution and hanging in the room. For room disinfection the evaporation of the gas and the method of spraying the formaldehyde by a jet of steam have proved the most valuable. The direct generation of the gas from wood-alcohol is usually subject to the disadvantage that much of the alcohol may be lost through conversion into carbonic oxid or carbon dioxid, and it is difficult to gage the quantity of formaldehyde generated. Paraform pastilles are efficient provided a sufficient number be used and the aqueous vapors produced by burning alcohol in the lamp be permitted to mix with the gas. In using the spray a protecting device for the eyes is necessary. For efficient action it is important that the room be tightly sealed, that the entire quantity of disinfectant enter the room within a short space of time, that the surfaces of all articles to be disinfected be freely exposed to contact with the gas and when possible, slightly moistened; and that the room be kept tightly closed for twenty-four hours. Sheets of paper and envelopes are readily penetrated, and leather or delicate fabrics are not injured. Although smaller amounts are often advised, one pint of the saturated aqueous solution of formaldehyde or, according to the experiments of Notter and others, not less than fifty, one gram paraform pastilles should be used for each 1,000 cubic feet of air space. As imperfect gaseous diffusion often interferes with a disinfectant action, when large rooms are to be disinfected, the gas should be discharged at several different points. Under the best conditions, absolute disinfection is not usually obtained. Flugge considers the result to be good if 90 per cent. of the pathogenic organisms are destroyed. The pungent odor of formaldehyde gas may be removed by the evaporation of ammonia water. Formaldehyde is an efficient agent for disinfection of script or coin. Sputum, vomit, feces, urine, and the like may

be efficiently disinfected by intimate mixture with sufficient of the solution to give a proportion of one per cent. of the gas. For the purposes of general surgical disinfection it is unsuited. It makes the skin rough and leathery, and has a destructive action on the delicate tissues. Distressing skin affections of the hands of surgeons have followed its prolonged application.

Formaldehyde is often an unreliable agent for the destruction of vermin. Mosquitoes, flies and other arachnids usually are killed, but bedbugs, roaches and possibly fleas secrete themselves in the cracks and crevices less accessible to the gas, and thus often escape. The larger animals are destroyed if left for a number of hours in an apartment in which the gas is present in large amount. For the destruction of vermin, sulphur dioxide is more valuable.

Sulphur dioxide, SO₂.

This gas is usually generated by burning brimstone or prepared sulphur candles in the dwellings, hospitals barracks, etc., that it is desired to disinfect. It may be generated by burning carbon bisulphide in a suitable lamp and may be used with greatest precision if taken from tanks of the liquid gas. Repeated experiments show that as it is commonly employed, it is unreliable as a germicide. The Committee on Disinfectants of the Public Health Association, advised that at least 4 volumes per cent. of the gas be present in the air of the room to be disinfected for at least twelve hours. When burned in the usual way, it is difficult to comply with these conditions. The gas diffuses rapidly, tarnishes metals and in the presence of moisture has a bleaching action on many colors. At least 4 grams (60 grains) should be burned for each cubic meter of air space, and there should be a simultaneous liberation of aqueous vapor, for the gas is comparatively inefficacious in dry air. In burning brimstone it should be broken in small pieces well wetted with alcohol and not more than one pound should be burned at one place. Thus, for large rooms, sulphur should simultaneously be burned at a number of places. To guard against fire, the metal vessel holding the sulphur should be supported in a large pan containing water. It is only under favorable conditions that more than 20 per cent. of the sulphur used is consumed. It is a very valuable agent against vermin, destroying flies, fleas, mosquitoes, roaches, bedbugs, and other insects, and may also kill rats and other larger animals. For those diseases, therefore, that are transmitted by vermin it may be of greater value than substances having a higher germicidal power but less destructive to animal life.

Oxygen and Ozone.

The ordinary form of oxygen is inefficacious as a germicide, but in the form of ozone, especially in the nascent state, has a decided oxidizing

action. In sufficient amounts to be actively germicidal it is irritating to the mucous membranes and for practical purposes it is also rendered inapplicable from the expense and practical difficulties underlying its production.

Bromine, chlorine and iodine, in the gaseous state, are all efficient germicides, but are unsuited for general use by reason of their irritating and toxic qualities, and their chemical affinities, which result in the bleaching and deterioration of colored fabrics, and the tarnishing of metallic surfaces.

LIQUID DISINFECTANTS.

The disinfectant powers of inorganic agents have in part been found to bear a relationship to the character of their ionization. This refers to the disassociation of acids, bases and solids into electropositive or electronegative ions when they are in watery solution. Paul and Kronig have found that most acids act as disinfectants in accordance with their electrolytic disassociation; bases in accordance with the concentration of the hydroxyl-ions; while oxidizing agents have a disinfecting action related to their electric activity. The halogens, chlorine, bromine and iodine have a disinfectant power in inverse ratio to their atomic weight. The theory of ions would seem to explain the inefficiency of many disinfectants when in alcoholic solution or in contact with albuminous material. Other substances, as carbolic acid, are said to have a direct molecular action upon bacteria, ionization not taking place. The bactericidal action of certain agents seems to be unrelated to the state of ionization.

Carbolic Acid, (Phenol).

When pure, phenol occurs in the form of colorless needle-like crystals, soluble in about eleven parts of water, but for convenience it is usually liquefied by the addition of a small percentage of glycerin.

Crude carbolic acid is a dark-colored liquid having a powerful odor and containing cresols and other coal-tar derivatives. Phenol precipitates albumins without entirely losing its disinfective action. It is usually employed in the strength of from 1 to 5 per cent. Its germicidal power is moderate, and at present it has a rather limited use in surgical practice. The *Bacillus typhosis* is quite tolerant of this agent and may become accustomed to solutions of the usual strength. It decreases tactile sensibility, renders the skin rough, and if applied to portions of the body for long periods of time, even in weak solution, may produce local necrosis and gangrene.

The pure acid is caustic and is used as an antiseptic cauterizant in appendectomy, for swabbing out tuberculous abscesses and the like. It has also been employed for hand disinfection, the liquefied acid being immediately neutralized by applying strong alcohol.

Cresol.—The various cresols, *meta*-, *tri*-, *ortho*-, and *para*-cresol, are all disinfectants. Excepting

tricrosol, which has been extensively used as a preservative of antitoxin serums, the cresols are usually employed in combination rather than singly. All combine well with oils, and with soaps, and have the advantage of not corroding metallic surfaces.

Creolin.—Creolin contains about 4 per cent. of cresol, together with soap and phenol. It is a black, tarry liquid with a penetrating odor. It makes, if mixed with water, an opaque milky solution. It has been credited with marked disinfectant power, but this is evidently an error, as anthrax organisms will grow after they have been immersed in pure creolin. Hirst has reported the development of tetanus from intra-uterine irrigations of creolin solutions made with rather muddy tap-water. It may be employed with advantage against lice, fleas and other animal parasites.

Lysol.—Lysol contains about 50 per cent. of cresol, mixed with the neutral potash soap, and when mixed with water, forms a transparent, soapy solution. It seems to be more valuable as a germicide than carbolic acid, and is extensively used in surgical practice.

Other cresol compounds for which high antiseptic powers have been claimed are *saprol*, consisting of 20 per cent. mineral oil with 80 per cent. of crude carbolic acid; *solveol*, a concentrated aqueous solution containing over 25 per cent. of cresols; and *salutol*, containing 60 per cent. of cresols in sodium cresol.

Saprol has been advised for the disinfection of excreta and privy vaults. Solveol and salutol are said to be less irritating and more potent than carbolic acid as general surgical disinfectants.

Alcohol

Alcohol is a good antiseptic, but is a weak germicide. In laboratory experiments it has been found most efficient in 50 per cent. solutions, the germicidal value diminishing progressively with the addition or subtraction of water. When heated, the weaker alcohols are found to be more potent, while many bacteria may be boiled in concentrated alcohol without destruction. Too great reliance, therefore, should not be placed in the sterility of catgut boiled in alcohol or instruments dipped in alcohol and momentarily flamed. Strong alcohol reduces the effectiveness of mercuric chloride, while sublimate, carbolic acid, lysol, or thymol are said to be more powerful as germicides when dissolved in 50 per cent. alcohol than in water. When applied to moist surfaces of the body, alcohol is of course, diluted, and so proportionately stronger solutions should be used than those found efficient in the laboratory.

Cumol is a yellowish, oily liquid, boiling at about 160° C. (331° F.). Catgut, thoroughly dehydrated by dry hot air, may be boiled without injury in cumol, and afterward the cumol may be driven off by dry heat. This is one of the best methods of disinfecting catgut.

SOLID DISINFECTANTS.

Soaps.

Not only are soaps of good quality sterile but they have a well-marked bactericidal action. The experiments of many observers, including those of the writer, indicate that many pathogenic bacteria are killed within a short time (5 to 30 minutes) by solutions containing 3 to 10 per cent. of hard soap of good quality. This action does not depend upon the free alkali present, as it occurs in soaps practically neutral. The pathogenic cocci seem more resistant than the organisms of cholera and typhoid fever. Although the soft or potash soaps seem more active, as a rule, they are less desirable than sodium soaps on account of their greater impurity. Hard soaps containing rosin are considered less potent than the purer forms, and in any case, dilution or admixture with hard water reduces the bactericidal action. With an appreciation of the inherent germicidal power of soaps the fatuity of adding traces of carbolic acid, boric acid, creolin or similar agents to render them antiseptic is apparent. It has been found possible, however, to enhance the bactericidal action by introducing $\frac{1}{2}$ to 3 per cent. of mercuric biniodide or the double iodide of mercury and potassium. A 1-per-cent. solution of such a soap was found to destroy ordinary pathogenic bacteria in one minute. For hand disinfection, Mikulicz strongly commends the German spiritus saponatus, to be applied in full strength for five minutes.

Mercuric Chlorid (Corrosive Sublimate).

Mercuric chlorid is one of the few antiseptics generally employed in surgical practice. It is easily decomposed and rendered inert by contact with metals or organic matter, and a film of oil or a coating of albuminous matter may prevent its action. Its use is restricted chiefly to surgical practice, where it is employed to cleanse the hands, the operative field, and to serve as an irrigating solution for wounds. The first claims made by Koch, and others, about its extraordinary germicidal properties have been modified by later investigations, which show that organisms that apparently have been killed by this salt often regain their vegetative properties when the sublimate is neutralized by the addition of ammonium sulphid. As this neutralization has often been omitted experimentally, many of the tables of germicidal values are useless. To render it more stable and effective, it is usually combined with citric or tartaric acid, or sodium or ammonium chlorid. Objections to its use are its toxicity, unstability, lack of penetrative power and destructive action upon metals. It is used in the strength of from 1:500 to 1:10,000. The former strength is very apt to produce a marked local irritation, the latter is so weak as to be untrustworthy. It should not be used to disinfect solutions containing organic matter such as sputum, urine or typhoid stools. To insure its more thorough action, dirt, fat and loose epithelial

scales should be removed from the skin before the sublimate solution is applied. To this end the body surface is first thoroughly scrubbed with soap and hot water and a solvent such as turpentine, ether or alcohol then applied.

Mercuric iodid is insoluble in plain water, but soluble when an excess of potassium iodid is added. It is said to have nearly the disinfective powers of the bichlorid without its irritating action, its destructive effect upon metal instruments, or its unstability.

Silver Nitrate.

Although this salt blackens organic matter on exposure to light, is easily decomposed and is irritating, it seems to be one of the most efficient disinfectants for mucous surfaces. Thus, ophthalmia neonatorum may be prevented by Crede's method of introducing one or two drops of a two-per-cent. solution of silver nitrate into each eye of the new-born infant. There is evidence that this agent, if used with sufficient promptness may also abort gonorrheal infection of the urethra or other mucous membrane. Similar infections of the mouth or pharynx seem at times to be arrested by the use of this agent. Although less irritating, more stable, and shown *in vitro* to possess bactericidal power, it is questionable whether the newer organic compounds of silver are clinically as efficient germicides as is silver nitrate, which has the advantage of destroying the exposed layer of contaminated cells.

Chlorinated Lime (Chlorid of Lime).

This consists of a mixture of calcium chlorid and hypochlorite, and owes its efficiency chiefly to the latter. It should contain at least 35 per cent. available chlorin (U. S. P.) and should be dry, friable, and nearly free from the odor of chlorin until moistened. It is an efficient disinfectant in a strength of 1:400, and solutions of 1:1,000 were found by Bolton to destroy the organisms of cholera and typhoid fever within two hours.

For *excreta* it is one of the most efficient practical disinfectants. The committee on disinfectants of the American Public Health Association advise that six ounces of chlorinated lime, containing at least 25 per cent. of available chlorin, should be dissolved in one gallon of water. For use, one quart of this solution should be mixed intimately with the typhoid dejections, and permitted to stand at least one hour before being thrown into the privy or drain. As a hand disinfectant the value of this agent was, years ago, conclusively shown by Semmelweis in the prevention of puerperal infection. Recently its use has been revived in a modified way. About 8 grams (2 drams) of chlorinated lime are placed on the palm of the hand, a crystal of sodium carbonate weighing about 0.5 gram (8 grains) added, the mixture moistened with water, and thoroughly rubbed into the hands and forearms.

Especial care is to be taken to carry it under the nails and along the ungual folds, with swabs of cotton. Finally, it is washed off with sterile water. Its use should always be preceded by the customary cleansing with brush, soap and hot water, and may be followed by the use of other germicides. It has the disadvantage of rendering the skin rough, and the nails brittle. In the dry form it is a valuable agent when dusted in privy vaults, acts as a deodorant disinfectant, and also repels insects, mixed with manure it serves a useful purpose in preventing the propagation of flies and other insects.

Sodium hypochlorid solution (Labarraque's or Javelle's solution) consists of chlorinated lime 75, sodium carbonate 150, water to 1,000. It should contain at least 2.6 per cent. by weight of available chlorin. It is a useful antiseptic, but is less commonly employed than the simple chlorin solutions that seem to be equally efficient.

Metals.

The development of microorganisms may be restrained by contact of the solution containing them with certain metals, such as silver or gold; probably because traces of metallic salts are formed. Surgeons have availed themselves of this action, silver wire suture being used in operating upon portions of the body liable to infection, and silver foil to cover wounds. Of the great number of other chemicals that have from time to time been in repute as disinfectants mention may be made of *ferrous* and *ferric sulphate*, *ferric chlorid*, *zinc chlorid*, *aluminum chlorid*, *copper sulphate*. These are feeble disinfectants, rarely to be employed when the more efficient agents can be secured. In this connection note may be made of Miller's observation that copper amalgams when placed in the cavities of carious teeth have a remarkable influence in arresting decay.

Boric acid in 10-per-cent. or saturated (about 17-per-cent.) solution forms a mild lotion for delicate surfaces detergent and antiseptic, although scarcely to be considered germicidal.

Iodoform.—The value of iodoform as a dressing for infected wounds is attested by a multitude of able clinicians, yet in the laboratory it seems to have little bactericidal power. It often contains living bacteria and infection has resulted from the injection of mixtures of iodoform and bacteria. These experiments are not absolute proof that in wounds iodoform does not gradually liberate antiseptic compounds or stimulate the cells to greater resistance, yet they indicate that it should be sterilized before use. This may be accomplished by exposing it to formaldehyde, solutions of mercuric chloride or by tightly sealing it in a bottle containing a little moisture which is placed in a steam sterilizer or boiling water for one hour. The toxic action of iodoform as well as that of phenol, mercury and silver salts should be remembered. In large wounds it should be avoided or used sparingly, and in general small amounts only should be employed.

CHAPTER XIV.

THE INHIBITION OF THE FACTORS IN DISEASE.

ANIMAL CONVEYORS.

THE LIFE-HISTORY OF THE MOSQUITO.

Development.

Ova.—The female insect usually lays her eggs upon the surface of water, although it is possible that at times the eggs are deposited upon grass or other substances from which they may be later washed by rains into pools. In from twelve

Adult.	Culex.	Anopheles.
Palpi.	Female has diminutive palpi with 3 segments. The male has palpi nearly as long as proboscis, with 5 segments.	In both male and female nearly the length of proboscis and with 5 segments.
Wings.	Usually not marked.	Usually spotted.
Body axis.	Forms a nearly straight line. Parallel with the surface on which the Culex alights.	Is curved making the Anopheles "hump backed." Forms an angle often approaching 90° with the surface on which the insect rests.
Note.	Shrill, high pitched.	Several tones lower and less clear than that of Culex.
Biting.	Usually pauses before biting.	Bites immediately on alighting.
Time of appearance.	Evening and also during day.	After 6 P. M.
Breeding places.	Usually artificial collections of water, tin cans, drains, sewers, etc.	Usually natural collections of water, streams, pools, etc.
Eggs.	200 to 400 arranged vertically with their sides coherent, forming a boat-shaped mass, that is concave below, convex above.	Float loosely connected or isolated in water on their sides, are not united and the egg mass form no characteristic figure.
Larvæ.	Form an angle of about 45° with the surface of the water. Frequently descend and seem heavier than water.	Unless disturbed habitually remain at the surface, with which their bodies lie parallel. Seem lighter than water so that they descend with effort. The respiratory siphon is longer, the head parts smaller, than corresponding parts of Culex.
Pupa.	Float nearly vertical to the plane of the surface of the water. Respiratory siphons longer and narrower than those of Anopheles.	Body oblique to the surface, respiratory siphons shorter and broader.
Duration of development.	Ten days.	Twenty-four days.

hours to three or five days after the eggs are laid the *larvæ* or wigglers emerge. The wigglers breathe air through a projecting segment given off near the anal extremity and containing a double-trachea. This must frequently be brought

into contact with the atmosphere or the larva will drown. The wigglers feed on free particles in the water, especially upon algæ. After a variable number of days they enter the *pupa stage*, which is characterized by a marked enlargement of the thoracic segment, from which project two ear-shaped respiratory siphons that assume the functions of the former respiratory tubes. A number of days later the imago emerge from the pupa. The entire cycle of development usually occurs in from ten days to four weeks; but if the weather be cold, the larval or pupal stage may be prolonged indefinitely. The larvæ may remain frozen for a long time in ice without being destroyed. They are killed rapidly by drying. Howard found that they died in from twenty-four to forty-eight hours after the water had been drained from mud containing them.

Adult mosquitoes may hibernate during the winter. They are often carried to new neighborhoods by trains, stages or other conveyances. While Howard believes that they rarely fly long distances, they have been noticed far out at sea. They have been kept alive under artificial conditions for over two months, but usually they die within a few weeks.

As only anopheles transmit malaria, it is important to note their distinguishing features from those of the Culex.

The *yellow fever mosquito* (*Stegomyia fasciata*) has been found in tropic and subtropic, but, thus far, not in the temperate or arctic regions. It is characterized by conspicuous silver stripes upon the thorax and abdomen, and bands upon the legs. The larva and pupa resemble those of the genus Culex. The larva have been found in cisterns and in small artificial collections of water in and about houses. As it is active in the early afternoon as well as at night, it has been called the "*day mosquito*."

The Destruction of Mosquitoes.

In a single summer one female may give rise to twelve generations, and as the females of the genus Culex deposit from 40 to 100 eggs, and of the Anopheles from 200 to 400 eggs at one time, the possibilities of mosquito multiplication in a single season almost exceed comprehension. Happily many natural agents cause a high mortality in the mosquito family, so that practically this number is far from being approximated.

The Destruction of the Larvæ.—The most effective measures are those directed against the *breeding* of mosquitoes. For successful breeding a suitable collection of water is the first essential, for it has not been shown that the larvæ develop apart from the water. By filling in hollows, by draining swamps, and by preventing the accumulation of water in discarded cans, pails, bottles, and similar receptacles much may be accomplished. Collections of water that do not remain over nine days may be ignored, as the period from the deposition of the eggs to the emergence of the adult insects probably is rarely less than ten days. Collections of water that are perma-

nent or indispensable should be made inaccessible to the insects or uninhabitable by them. Lakes, pools, springs, watering-troughs and the like may be stocked with the natural enemies of the mosquito. The fish that have been especially commended for this purpose are *top minnows*. (*Gambusia affinis*), *sticklebacks* (*Gasterostous aculeatus*) and the common sunfish (*Lepomis gibbosus*).

Salamanders are also useful. The larvæ of the *dragon-fly* and certain *water-beetles* prey upon the larvæ of mosquitoes, but practical means of introducing these into the breeding places have yet to be suggested. As the *Anopheles* seek the protection of water plants, these measures may not be entirely efficient. The larvæ of *Culex* have been observed to destroy those of the *Anopheles*. Tanks, cisterns and rain-water barrels should be efficiently screened to prevent access of the gravid female to the water or, better, the water surface covered by a film of coal oil. This kills the adult females as they attempt to deposit their eggs, prevents oviposition and destroys the larvæ. The crude, fuel oil, is by Howard commended as preferable to the more volatile grades. In Cuba the army orders of December, 1901, advise, "an application of one ounce of kerosene to each 15 square feet of water, twice a month." Water in cisterns, tanks and rain-barrels may be treated similarly, and remain useful for washing or drinking purposes, provided it is drawn off from below, so as not to disturb the surface film. On large bodies of water the oil may be sprinkled, sprayed, spread with swabs, or delivered below the surface by means of perforated pipes. It is important that the entire surface be covered; otherwise the larvæ may collect in the places free from oil. This treatment does not injure the fish. The use of potassium permanganate has been urged, but the quantities required, and its rapid disintegration, render the method impracticable.

Destruction of the Imago.—Adult mosquitoes are caught and destroyed by dragon-flies, bats, and many species of night birds. Houses are best protected from them by accurately fitted window and door *screens*. A simple and effective means for getting rid of those that have gained entrance is afforded by a tin cup fastened to the end of a stick and containing a small quantity of *kerosene*. When this is placed under the resting mosquito, it promptly falls into the oil and is killed. The insects may be stupified by blowing *pyrethrum* (Persian powder) about the room or burning small cones formed of the dampened powder. The stupified insects may be swept up and burned. Fumigation with *sulphur* is generally efficacious, and should be applied to holds of vessels, passenger coaches, and other conveyances that come from a malarial or yellow fever centre. *Chlorin* gas generated by pouring sulphuric acid upon chlorinated lime has also been advised for this purpose. *Hydrocyanic acid* gas is efficient but dangerous.

Eucalyptus trees and castor-oil plants have been thought to emit vaporous substances distasteful to *culicidæ*. Eucalyptus trees planted

about marshy ground may aid by drying the soil, and their foliage may serve as a screen, interrupting the mosquitoes' flight. The value of the eucalyptus as well as that of the castor-oil plant is probably overrated. Mosquitoes have even been observed on the latter.

To keep mosquitoes from the body camphor and such essential oils as those of lavender, citronelle, pennyroyal, peppermint and eucalyptus are advised. Howard gives the following formula which is highly recommended as an application by E. H. Bane: Castor oil, 1 ounce; alcohol, 1 ounce; oil of lavender, 1 dram. An ointment of petrolatum impregnated with peppermint and eucalyptol is also useful and convenient of application. It is said that the hanging about the beds of cloths saturated with solutions of carbolic acid or of one of the essential oils mentioned will keep mosquitoes away.

It is of the utmost importance that mosquitoes be prevented from contamination by biting patients with yellow fever, malaria, or filariasis. Such persons should be protected by careful screening. By the use of quinin in doses of from 5 to 15 grains or more daily, not only is a prophylactic action against malaria obtained in the individual, but usually the drug also serves to keep the peripheral blood in infected persons free from the parasites, so that there is less danger of their transference to the mosquitoes. Koch considers the general use of quinin a feasible means of exterminating malaria in a country. Unfortunately, certain forms of the parasite, as the estivo-autumnal variety, are not readily influenced by this drug.

BOOK REVIEWS.

TUBERCULOSIS. Recast from Lectures Delivered at Rush Medical College, in Affiliation with the University of Chicago. By Norman Bridge, A.M., M.D. Phil., N. Y. & Lond., W. B. Saunders & Co., 1903. 302 pp., 8vo. Price: Cloth, \$1.50.

This handy volume deals with the non-surgical forms of tuberculosis, mainly as it affects the organs of respiration. The characteristics of the *B. tuberculosis*, and its effects upon the various organs and tissues of the body are sketched with considerable detail. A good account is given of the processes, varieties, and pathology of the disease, together with its etiological factors, both exciting and predisposing. Next come chapters upon the symptoms, physical signs, diagnosis, and prognosis, with an excellent résumé of prophylaxis. Somewhat over one-third of the book is devoted to the treatment of tuberculosis, general, hygienic, climatic, medicinal, and local, including the so-called serum treatment. Finally, the many advantages of sanatoria for the consumptive are well presented.

As a whole the volume is a very satisfactory reflection of modern views regarding the nature and therapeutic management of non-surgical tuberculosis. The author very properly, and in accordance with the best practice, lays consistent stress upon the facts that there is no specific treatment for phthisis, that recovery depends upon constant attention to the details of hygiene, clean air, rest, and feeding, that medicaments have a minor but still important function, and that the patient

is to be impressed at the outset that the fight for arrest of the disease must be a matter of years rather than of months. The style of the book is semi-colloquial, and an opportunity is thus afforded for simple and clear explanations of a number of points which are much more easily grasped by the student than if clad in the elaborate verbiage of a more pretentious book. There are some repetitions, but the subject bears them. With one exception, namely the adverse judgment upon the value of pulmonary gymnastics, this volume can be commended to the medical reader as a desirable possession. Paper and presswork are good, and there are a few illustrations. The index is not as full as desirable.

GLENTWORTH R. BUTLER.

PRACTICAL TREATISE ON MATERIA MEDICA AND THERAPEUTICS. By Roberts Bartholow, M.A., M.D., LL.D. Eleventh Edition, Revised and Enlarged. N. Y. & Lond., D. Appleton & Co., 1903. xxiv, 866 pp., 8vo. Price: Cloth, \$5.00.

This new edition of Bartholow's *Materia Medica and Therapeutics* well sustains the reputation which this standard work has enjoyed for quarter of a century. It is thoroughly up to date, and very comprehensive in its scope. Besides giving an account of the drugs, official and otherwise, which are in good use, it gives tolerably full articles on dietetics, hydrotherapy, aërotherapy, electrotherapy, and massage. It has an index of medicines and a very full clinical index.

E. E. C.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D. Assisted by H. R. M. Landis, M.D. Vol. I, March, 1903. Phil. & N. Y., Lea Bros. & Co., 1903. 450 pp., 8vo. Price: Cloth, \$2.50.

Among the many features of interest in this volume we note Frazier's excellent résumé in the section on the Surgery of the Head, Neck and Chest, particularly the diagnosis of brain tumors and abscesses.

Herrick contributes an excellent section on the Infectious Diseases, devoting especial attention to the importance of Serum Therapy.

Crandall considers the Diseases of Children and gives an interesting description of the method of modifying milk for infant feeding.

The brilliant work done in chemical pathology is described by Dr. Hektoen with special reference to the specific properties of the various tissues and fluids of the body.

These are but the more important features which make the present issue a very interesting epitome of recent medical progress.

WILLIAM FRANCIS CAMPBELL.

SURGICAL EMERGENCIES. THE SURGERY OF THE HEAD. By Bayard Holmes. N. Y., D. Appleton & Co., 1903. xv., 569 pp., 14 pl., 8vo. Price: Cloth, \$2.50.

This volume is evidently the first one of a series treating of surgical emergencies. It deals with the surgery of the Head, Neck and Face. The plan and purpose of this work is admirable. They give to it the stamp of individuality which awakens and sustains the interest of the reader throughout.

A clear conception of the part under consideration is first insisted upon. Then is elucidated successively, 1st. Those conditions most frequently met with; 2nd, those less frequently met with, and, finally, those conditions which are merely of theoretical importance.

Thus is maintained a proper perspective and at the same time the student is given a vivid and harmonious picture of the relative importance of the various surgical procedures described. A carefully selected number of clinical cases are appended under the separate headings, which add vividness and completeness to the subject. In this volume the author shows that he is not alone a master of modern surgery, but, better still, a teacher imbued with the fine art of transferring thought into language so clear, concise and concrete that "he who runs may read," and he who reads may learn.

WILLIAM FRANCIS CAMPBELL.

A TEXT-BOOK OF OBSTETRICS. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania. Third Edition, thoroughly revised, with 704 illustrations, 36 of them in colors. 872 pp. 8vo. Philadelphia and London, W. B. Saunders & Co., 1901.

Philadelphia is the birthplace of one of the most important works on obstetrics which have appeared within a twelvemonth. The author is Barton Cooke Hirst, M.D., professor of obstetrics in the University of Pennsylvania, and widely known as a lecturer, writer and obstetric surgeon. This is the third edition of the work, but so thoroughly has it been revised that it may well be regarded as a new book.

This volume is an excellent example of the type of text-book, written by a single individual, and comprehensively covering the entire subject. Many indeed regard it as *facile princeps* among the works of this class; for advanced students and for the general practitioner it may well be regarded as the best volume upon obstetrics yet produced by a single author.

Pregnancy, Labor, the Puerperium and the New-Born Infant are the principal divisional headings, but the author's method of arrangement differs somewhat from that usually adopted. Anatomy and physiology are given ample recognition where these subjects must of necessity be considered, but pathology is really the key-note of the volume. Anomalies of development and pathologic changes, both gross and microscopic, are described with an attention to detail, with such wealth of illustrative material and clinical experience, and with the logical sequence of cause, symptoms and treatment so well preserved throughout, that the discussion of each group of cases is of unusual interest.

To illustrate how thoroughly and systematically these pathologic changes are presented, one chapter only need be cited—that dealing with the pathology of the pregnant woman. The diseases of the genitalia, uterine muscle, alimentary canal, urinary apparatus, nervous system, circulatory apparatus, respiratory apparatus and osseous system are included in this chapter as well as infectious diseases, skin diseases, abortion, miscarriage, premature labor and extra-uterine pregnancy. The series of photographs of abdominal enlargement due to obesity, hernia, sarcoma of the liver, ovarian cysts, carcinoma of the uterus with ascites, fibroid tumors and even a simple distention of the bladder are of great value as an aid to diagnosis, and the illustrations of the various forms of extra-uterine pregnancy are also excellent.

The description of the management of actual labor can not well be surpassed. The lateral posture is preferred and the various procedures are well illustrated.

Among obstetric operations the subject of forceps is a noteworthy one, for here is shown for the first time, so far as the reviewer is aware, the cephalic method of application so much preferable to the pelvic one so commonly employed.

Another unusual feature is the series of temperature charts which illustrate emotional fever, the fever of con-

stipation, mammary congestion and the other non-infectious fevers or intercurrent diseases which not infrequently complicate the puerperium.

Years of successful practice and a free use of the material thus accumulated are large factors in the success of the book. The numerous illustrations are, as a rule, singularly good, but the few colored plates are so crudely tinted that they compare unfavorably with the others made from drawings or from photographs. Unfortunately, too, although the index to the subject matter is an ample one, there is no list of the illustrations, so they can not readily be referred to in looking up the literature of a given topic.

HENRY P. DE FOREST.

DISEASES OF THE HEART AND ARTERIAL SYSTEM. Designed to be a Practical Presentation of the Subject for the Use of Students and Practitioners of Medicine. By Robert H. Babcock, A.M., M.D. New York and London, D. Appleton & Co., 1903. xxi, 853 pp., 3 col. pl. 8vo. Price: Cloth, \$6.

First as to the contents of this fine work. It begins with some general considerations regarding the anatomy and physiology of the heart and a very clear description of the methods of examination, covering 36 pages. The book proper is divided into five sections dealing respectively with diseases of the pericardium (155 pages); diseases of the endocardium (360 pages, of which 91 are devoted to the treatment of valvular disease); diseases of the myocardium (200 pages); cardiac neuroses (33 pages); and diseases of the arterial system (74 pages). There is also an appendix concerning the X-ray, the sphygmograph, and the tonometer.

This treatise is evidently the result, not only of large clinical experience, but of wide reading and careful reflection. The author disclaims any pretense of originality, but it is open to question whether the conclusions and results of a ripe judgment, such as are presented in this volume, are not worth quite as much as some academic so-called original work. Certainly a large amount of material, both clinical and literary, has been worked out and presented in a most clear, succinct, and practical manner. The author's style is pleasing and without ambiguity, nor is the text overloaded with unnecessary technical terms.

After a careful perusal of Dr. Babcock's book there are two features which strike the reader as characteristic and valuable. These are, on the one hand, the case histories, and, on the other, the unusual number and value of the pages devoted to the therapeutics of the subject. The narration of cases, although at times in much detail, does not cause the usual weariness of flesh in the reading, mainly because of the interesting manner in which they are written. They are particularly well chosen to illustrate the manifold varieties of disease and the practical wisdom required in the management of actual cases. Regarding the therapeutic side of the work none but words of praise are required. So far as the reviewer's reading goes there is no more complete and reliable exposition of the treatment of circulatory disease than that found in this volume. That this high commendation is deserved will readily be admitted after reading chapters XVI, XVII, and XVIII upon the treatment of valvular heart disease. These chapters are distinguished by a fulness of detail and a variety of therapeutic resource which cannot but prove of great value, not only to the young practitioner, but, as well, to the clinician of years.

The work is excellently well illustrated with high-grade cuts, the paper and printing are equally good, and there is abundant evidence of painstaking proofreading.

The book can be unhesitatingly recommended as a distinct acquisition to one's working library.

GLENTWORTH R. BUTLER.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE. DISEASES OF THE LIVER, PANCREAS AND SUPRARENAL CAPSULES. By Leopold Oser, M.D., Heinrich Quincke, M.D., Edmund Neusser, M.D., and G. Hoppe-Seyler, M.D. Edited, with Additions, by Reginald H. Fitz, M.D., and Frederick A. Packard, M.D. Authorized Translation from the German, under the Editorial Supervision of Alfred Stengel, M.D. Philadelphia, New York and London, W. B. Saunders & Co., 1903. 918 pp., 6 pl. 8vo. Price: Cloth, \$5; Half-Morocco, \$6.

This, the sixth, volume of Nothnagel's practice deals in an exhaustive manner with diseases of the pancreas, suprarenal capsules, and liver.

The section on Diseases of the Pancreas (303 pages) is written by L. Oser, with a prefatory article on the anatomy of the organ by E. Zuckerkandl. The physiology of the pancreas and the physiological chemistry of the pancreatic juice are next discussed, followed by a very full and important consideration of the general pathology and symptomatology of the diseases of the pancreas. The symptoms are divided into three groups: First, those which are characteristic, such as fatty stools, faulty albumin digestion, and diabetes and glycosuria so far as symptomatic of pancreatic disease; Second, those which may be referred to disease of the pancreas, although as yet without any satisfactory proof, such as changes in the urine (indicanuria, pentosuria, lipuria), emaciation, salivation, or peculiar diarrheas; third, symptoms, which although important and significant, and occurring frequently in disease of the pancreas, do not point directly to it, and may occur in disease of one or more of the digestive organs aside from the pancreas itself, such as tumor, jaundice, pain, pressure signs, vomiting, fever, and the like. The remainder of the section, not quite two-thirds, treats of the special diseases of the pancreas, inflammations, neoplasms, syphilis, hemorrhage, calculi, necroses and degenerations, even down to bullet wounds and foreign bodies.

The section on Diseases of the Supra-renal Capsules (77 pages) is from the pen of E. Neusser. After rehearsing the anatomy, physiology, pathology, and symptomatology of the adrenals, and the therapeutic properties of the extract of the glands, the bulk of the section is naturally devoted to a comprehensive study of Addison's disease.

The section on Diseases of the Liver, including of course those of the Bile-passages and Gall-bladder (522 pages), was prepared jointly by H. Quincke and G. Hoppe-Seyler. Like the preceding sections this one very properly devotes its opening pages to the topographic anatomy, physical examination, and general pathology and physiology of the liver, as well as to the general etiology of its diseases. The important subject of jaundice is very completely discussed. The special diseases of the bile-passages follow, cholelithiasis, because of its great importance, receiving the major space, although cholangitis and cholecystitis are fully considered. The remainder of the section (about 300 pages) is devoted to diseases of liver proper—hyperemia, acute hepatitis, abscess, chronic hepatitis, neoplasms, parasites, degenerations, functional disturbances, neuralgia, and disease of the portal and hepatic veins. Particularly ample space is accorded to abscess, chronic hepatitis, and degenerations, and the discussion of these subjects is especially satisfactory.

This volume is probably the best in existence on the

subjects of which it treats. The fact that the two sessions of the 1903 meeting of the Congress of American Physicians and Surgeons were devoted to Diseases of the Pancreas and the Liver is good proof of the great interest now felt by the medical world, both surgical and medical, in these maladies, and great progress has been made of late years in their understanding and especially in their surgical treatment. That the book under review is abreast of the latest advances is assured by the careful editing of the distinguished American revisers, Dr. R. H. Fitz for the pancreas and suprarenal capsules, and the late—and lamented—Dr. F. A. Packard for the liver. The therapeutic side of the subject, both surgical and non-surgical, is very completely presented. The bibliographies are extensive, and the index is sufficiently full. The book is excellently printed, sparingly but well-illustrated, and no typographical errors have been noted. The work should be warmly received and have a large sale.

GLENTWORTH R. BUTLER.

PRACTICAL MEDICINE SERIES OF YEAR BOOKS. Vol. 4. Gynecology. Edited by Emilius C. Dudley, A.M., M.D., and Wm. Healy, A.B., M.D. March, 1903. 242 pp. 12mo. Chicago, Year Book Publishers, 1903. Price: Cloth, \$1.25. Price of series (10 vols.), \$7.50.

The literature on gynecology which has appeared throughout the world during the past year, has been carefully culled over and what is worth preserving appears in this little volume, supplemented by notes at the end of many of the articles which are of no less value than the articles themselves, embodying as they do the personal experience and practical work of the senior editor.

The book shows there has been some progress during the year in certain branches of this department of medical science, though no startling discoveries have been made. Some new light has been thrown upon infectious diseases and their treatment; some valuable contributions appear upon cystoscopy, differential diagnosis of tumors, relation of myoma of the uterus to heart degeneration, cancer and its treatment, and improved technic of vaginal hysterectomy; and a new method of relieving displacement of the ovary and tube is described under the title of adnexopexy.

The whole has been compiled and arranged to meet the needs of the general practitioner who has occasion to treat the diseases of women.

FREDERIC J. SHOOP.

AMERICAN EDITION OF NOTHNAGEL'S PRACTICE OF DISEASES OF THE STOMACH. By Franz Riegel. Edited, with Additions, by Charles G. Stockton, M.D. Authorized Translation from the German, under the Editorial Supervision of Alfred Stengel, M.D. Philadelphia, New York and London, W. B. Saunders & Co., 1903. 835 pp., 5 pl. 8vo. Price: Cloth, \$5; Half Morocco, \$6.

For the use of the general practitioner, this volume must be recommended as the best on its subject in the English language. That the splashing sound is not always indicative either of gastroptosis or ectasy, is a point well taken. Advice against the use of guides or lubricants in the introduction of the tube cannot be disputed.

The matter of the existence of "Erosions" as a disease *per se* is still an open question. The editorial notes

scattered throughout the work are of inestimable value; as e.g., the one stating that *bona fide vertigo* originating primarily and entirely from stomach trouble is *rare*. The chapter on "Feeding" is comprehensive and contains an abundance of "common sense." It must be agreed that a full diet is to be recommended, as a rule, as nearly all cases by the time they reach the "Stomach Specialist" have tried faithfully the various *diets* with uniform loss in weight and strength. The article devoted to "Gastric Hemorrhage" is concise and yet contains all that need be said, beside touching on the two new remedial measures, *i.e.*, adrenalin chlorid and gelatin. Gastroptosis and other dislocations of the organ are handled in an interesting manner and greatly added to by the clear plates accompanying them. The part describing gastritis is full of information concerning the border lines between the various subdivisions of this form of stomach trouble. That true chronic gastritis is not as frequent as was formerly supposed is correct. I do not think diarrhea can be termed "rare" in achylia gastrica, but I believe it is a fair indication of, if not a *total absence*, at least a *very low* state of glandular function. The tenure of ulcer as a basis of future cancer, seems to be losing ground. A little point in the management of cancer of value to the general practitioner is the care of the mouth, tongue, teeth, etc., in order to retain the appetite to the fullest possible extent. In the diagnosis of this disease, the great objections to transillumination are that it is not easily made in those unaccustomed to the tube, and that by the time we have a growth large enough to be outlined by the intragastric lamp, there will not be much chance for curative measures. More importance should be attached to the observance of the degenerative cell changes obtained by curettage of the gastric mucous membrane, upon which much work has been done by Hemmeter. The different neuroses, effects of gastric disease upon other organs, effects of other disease upon gastric digestion, etc., are all admirably discussed.

HARRY WARREN LINCOLN.

A TEXT-BOOK OF LEGAL MEDICINE AND TOXICOLOGY. Edited by Frederick Peterson and Walter S. Haines. In two volumes. Vol. I. Philadelphia, New York and London, W. B. Saunders & Co., 1903. 730 pp., 8 pl. 8vo. Price per volume: Cloth, \$5; Sheep or Half Morocco, \$6.

This work certainly presents the highest type of textbook and is among the best of the recent works written on this subject. It not only presents the subject fully, but also in a logical and concise way, and with an evident knowledge of the real needs of the medical man and counsel who are called upon to use it. In this is a great improvement on many already published treatises.

A. C. BRUSH.

MANUAL OF MEDICAL JURISPRUDENCE, INSANITY AND TOXICOLOGY. By Henry C. Chapman, M.D. Third Edition, Thoroughly Revised. Philadelphia, New York and London, W. B. Saunders & Co., 1903. 329 pp., 4 col. pl. 8vo. Price: Cloth, \$1.75.

This little work presents to us this subject in a condensed form and in a creditable manner. Of course in a work of this size only the outlines of the subject can be presented. Although it cannot be ranked as a textbook, it contains all the essentials necessary to refresh the memory of one familiar with the subject.

A. C. BRUSH.

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, AUGUST, 1903.

No. 8

ORIGINAL ARTICLES.

USES OF ERGOT.

An old manuscript to which is added a new postscript.

BY ALFRED T. LIVINGSTON, M.D.,
Jamestown, N. Y.

A DEAR old professor of *Materia Medica*, whose soul has since been welcomed to the amphitheater of heaven, used to relate to his classes each winter his theory of the action of mercury upon the liver and portal conduits; and how by stimulating that sluggish vascularity to a proper activity this much abused drug assumed the important position which he denominated "The equalizer of the circulation!" Mercury was his favorite theme and its action his favorite theory. Ergot is one of my favorite themes; and one of my theories is that my old friend misapplied to his subject the term which in all appropriateness belongs to mine.

Many diseases have as their chief symptom or element a disturbance of circulation—a vascular closure upon the surface which determines within a turgescence of the vessels; or an irritation or vascular laxness in some part which attracts or admits an undue proportion of blood. These states are likely to occur in proportion to the general or local lack of tone in the walls of the vessels. This lack of tone ordinarily means a diminished supply of energy from the sympathetic ganglia. When any of these ganglia are stimulated to greater activity as, *e.g.*, by galvanism, the vascular area supplied by them is promptly improved in tone. But it is often difficult or impracticable to apply such stimuli as electricity or shock, and the slower action of internal medication must be relied upon. In this broad field of innervation of the circulation, ergot stands without a peer. Ergot has long held an indisputable place as a stimulant to the muscular fiber of the uterus and to-day a large proportion of the profession give it but little wider application. It seems not to have been considered that the muscular tissue of that organ belongs to the same class which includes the muscular tissue of the heart, of the walls of the alimentary tract and

of the walls of the blood vessels—the unstriped fiber; and that possibly the drug which acts so strikingly upon that particular mass of such fibers might also act upon such fibers in other organs.

But latterly it has been gradually discovered that ergot is efficient in arresting hemorrhage, not only in the uterus, but in the lungs, stomach, nose, etc., and still more recently that it is useful in certain congestive states as, *e. g.*, in the kidneys. My own experience with this drug leads me to venture the assertion that it applies wherever unstriped muscular fiber needs stimulating or toning.

I do not pretend to say how it acts further than that I believe it produces its tonic effect on this fiber through its immediate influence upon the sympathetic ganglia, the vaso-motor nervous centers.

For more than a dozen years I have used ergot extensively in the treatment of the insane. Sleeplessness is a marked characteristic of that class and while I would not classify ergot under the head of "Hypnotics" I am fully convinced of its important value as an *aid* to a hypnotic. I am satisfied that by its tonic effect upon the vascular system of the brain it retains and prolongs that state of the vessels which is necessary to sleep. I have used it largely also for the same purpose and to the same effect in sleeplessness among the sane. In my own person, as well as with my patients, I have frequently demonstrated that ergot, alone, taken at the time of retiring, secures a continuous sleep throughout the night when, otherwise, there would be a period of wakefulness of two or three hours duration, occurring about the middle of the night.

I am reminded just here of a striking case which I will relate, and which will illustrate the relation of ergot both to sleep and to congestive states of the brain, to which I will next refer. Several years ago I was called to see an old man (above seventy, very stout and plethoric) whom I found sitting in a large easy-chair, retching violently and constantly, but vomiting nothing, from the fact, apparently, that there was nothing in his stomach to come up. His pulse was bounding and the entire head seemed engorged with

blood. His face and neck were intensely florid and on the forehead and temples the veins were swollen to their utmost capacity. His upright posture excluded the influence of gravitation in causing this distention of the vessels. He had great pain and distress in the head, but was unable to tell me his feelings then by reason of the constant horrible retching. His friends attributed his trouble to something he had eaten at supper (it was then 11 o'clock), but, after briefly observing him, I determined that whatever the initial irritation had been, the present retching and distress were caused by the congestion of his brain. I therefore gave him at once a hypodermic injection of ergot, from a preparation which I was in the habit of carrying for such use, an amount equivalent to 15 grains of the powder. Within 10 minutes there was a marked alleviation of his symptoms, and within half an hour he was quiet and comparatively comfortable. I then had him undressed and put to bed, and to secure against his own and my disturbance during the night, I gave him another similar dose three-quarters of an hour after the first—nothing but the ergot either time. Within 15 minutes after the second injection he went to sleep and slept six hours continuously. The next morning I put him upon the fluid extract of ergot with other medication that I thought indicated (he was a chronic dyspeptic) and he progressed in every way most satisfactorily. A few weeks later I was suddenly called to him again and found him intensely distressed in mind over the discovery that a wallet containing about a thousand dollars, all the money he had, and which he had collected for the purpose of paying some pressing debts, had been stolen.

Here was a powerful, active cause likely to produce in him extreme vascular disturbance in the brain, especially as this had so recently existed without such moral irritation; but it did not occur and I regard that fact as fairly attributable to the better vascular tone that had been brought about by the ergot.

Congestive states of the brain and its membranes, chronic or more acute, are very common among the insane, especially the melancholics. In these cases I usually employ ergot, to the comparatively prompt relief of the extremest symptoms of congestion, although in the majority of such cases the mere vascular disturbance has already been succeeded by the results of malnutrition, both in the walls of the vessels and the structures around them, and anything like

permanent relief is only obtainable by a long course of treatment, nutritive, moral, hygienic and medicinal. In the acuter cases I have had the happiest results, which I could only attribute to the efficiency of this drug as a vascular tonic. In cases of general paresis most striking improvement, sometimes long continued, has clearly resulted from the administration of ergot. It is probable that paresis is curable only in its earliest stages, and the symptoms then are not likely to be recognized by even the most intelligent physicians who have not had a considerable practical familiarity with the disorder, but should the disease be recognized prior to the degeneration succeeding vascular and nutritive disturbances I firmly believe that ergot, or ergot and galvanism of the sympathetics, would not only be the most sensible treatment, but would result in recovery from this most horrible disease.

The hyperemia of sunstroke, or as the result of heat, and the intensely hyperemic states succeeding the sudden cessation of narcotics in the habit cases (the only proper course, I believe, to pursue with them), are prime indications for the administration of ergot. In the latter class of cases, I like, when possible, to precede the heroic measure by a few weeks' course of ergot in order to prepare the vascular system by increased tone against the violent reaction that supervenes. The congestive states that so often occur in the aged, owing to the laxness of that period, are promptly relieved by ergot; but in these cases, the natural tendency to laxness necessarily continuing, and the habit of vascular yielding in certain areas having been formed, it is requisite to resort to a brief course of ergot occasionally, regardless of symptoms, in order to avoid recurring attacks.

Almost the whole class of cases loosely denominated nervous—the worn with work and worry, exhausted by excesses, physically depressed by a local chronic ailment, or more suddenly affected by grief, losses and disaster, or by disturbances of the menopause (particularly in young women), the victims of senseless exactions of teachers from their pupils, etc., have usually as the direct cause of the nervous symptoms, a central irritation and hyperemia which ergot will the most rapidly and certainly dissipate and so pave the way to recovery. It is from these cases that the ranks of the insane are largely recruited, and it is only by proper treatment in this preliminary stage of "nervousness" that that or some other serious culmination may be avoided.

In the treatment of epilepsy I frequently (I may say, usually) substitute ergot for the bromides in part or wholly; and I have observed, as a rule, as satisfactory results from the ergot as from the bromides. Wherever ergot may be satisfactorily employed in place of the bromides, I regard its use as important from the consideration that it does not interfere, as do they, with that chief element in the treatment of all disorders, nutrition. It may be objected that ergot does cause nausea, but although my experience with this drug has not been inconsiderable, I have but rarely had this complaint, and when it has occurred the diminishing of the dose usually sufficed. I discovered some time ago that combining a little wine of coca with ergot very agreeably masked its flavor, which is to some unpleasant and also prevented nausea.

I do not of course refer to the specific action of ergot upon the uterus, so long and so well known; but I want to advert to its use in some conditions connected with the menopause. Menorrhagia, amenorrhea, when the general condition is fair, acute or chronic congestion of the ovaries, the ovarian pain and tenderness preceding and sometimes attending the menopause, and the dull distressing pain of the congested uterus, are all indications for the use of ergot, and, as a rule, marked benefit or complete relief will follow such use. The cramping pains of a contracting uterus are of course contra-indicative to its use. But in another associated class of cases I regard ergot (as the quacks say of their wares) indispensable, viz., the disturbances of circulation attending the cessation of menstruation. To this climacteric may be credited many of the cases of insanity among women, besides the various other chronic or fatal disorders that grow out of it. And these distressing, lingering and fatal disorders may be avoided and comparative comfort secured to the woman who is passing through this dreaded "change of life," by keeping up a proper vascular vigor by that best tonic to the circulatory system that exists in the *Materia Medica*, Ergot. Its administration should begin as soon as irregularities of menstruation occur, and it should be kept up, at intervals, until menstruation has entirely ceased. By such simple means, the woman who has suffered sufficiently in the bearing of children, may enter in serenity and physical composure the quieter paths of her later life.

Thus far I have not theorized; but have given briefly some deductions from practical experience which are as clear to my mind as the relief of

pain by opium. I will now for a moment digress to the realm of opinion.

Surgery, I believe, is regarded as separated by quite a distinct line from medicine. At the same time there is one common element—disturbances of circulation—local congestion and succeeding inflammation. This result I believe may often be materially modified, if not entirely avoided, by a proper use of ergot. Nor is this quite wholly theoretical, for an accidental relation to a few surgical cases led me to the employment of ergot both preceding and succeeding severe surgical operations and I cannot, in considering the extraordinary results, dissociate the probable help of that drug toward securing them.

In many skin diseases the general treatment is quite as important as the local. This general treatment is efficacious by way of bringing up general tone in the circulation of the skin and therefore improved nutrition in that organ. Recognizing ergot as a specific tonic to the circulation in all parts of the body, I have recently employed it in a case of long continued and increasing acne rosacea, in an adult, covering cheeks, nose, chin and forehead, which has been treated in the usual way by general tonics and local applications without amelioration. Associated with this case was a chronic cerebral hyperemia. Owing to the chronic nature of the skin trouble I did not anticipate a rapid influence of the treatment upon it and was therefore agreeably surprised in a few weeks to find that it had almost totally disappeared. About that time the illness of a couple of children in her family gave the patient a great deal of anxiety and worry, occasioned loss of sleep, neglect of nutriment, etc., and the result was a retrograde both as to the head symptoms and the skin trouble, but by no means to the degree that existed at first. She is again much improved, but had not, when I last saw her, quite recovered the tone that existed before the relapse. I *believe* that in congestive skin affections ergot will some day become an important factor of treatment.

I also believe that acute congestions of the lungs, kidneys, liver etc., as well as of the brain, and spinal cord and their membranes, will, in time, be generally treated by the administration of ergot.

Upon the bowels ergot has a decided effect, which I take to be due to the stimulation of their muscular coat—increased peristalsis—and, therefore, in acute affections of that organ, where the greatest quietude is desired, it would be contra-indicated.

When given by the mouth ergot does not act upon the general circulation with sufficient promptness to meet acute cases the most satisfactorily, and sometimes, owing to a disturbed state of the stomach, it could not be thus administered.

This brings me to the subject of its administration subcutaneously. For half a dozen years or more, I have used ergot in this manner in mental and habit cases whom I have treated in my home, and with other cases in general and hospital practice. While having satisfactory results as to the action of the drug upon the condition for which it was given, I have always been annoyed by the local irritation produced at the spot where it was injected. Although I have given a great many injections of ergot, I have had but two abscesses result from them, and I am sure these might have been prevented by soothing applications, but in neither instance was complaint made until pus had formed. An indurated nodule has often remained for weeks; and generally for several days there would be localized inflammation, and pain when the spot was touched or the limb moved. I have endeavored to find a preparation of ergot for hypodermic use that would produce the least possible irritation, and to this end I experimented with a series of solutions which Mr. Llewellyn made at my suggestion. The last that occurred to me (Squibb's Extract in distillate of Hamamelis) has proven decidedly the most satisfactory. The solution is the most rapidly absorbed, the action is prompt, the local inflammation is the least; and while more or less soreness continues from 24 to 36 hours, in from 48 to 72 hours I have not been able to positively identify the locality of the injection. I trust that someone else has already found or will find a still better solution of ergot for hypodermic use, for I regard the convenient and unobjectionable application of ergot subcutaneously as one of the desiderata of medicine.

A word as to the manner of introducing the solution may not be out of place for I have seen physicians give hypodermic injections in a way that had the medicament been ergot there would doubtless have been serious results. The needle should never be introduced without care and discrimination. Anyone who is much in the habit of hypodermic medication has observed a vast difference among patients as to the connection of the skin with the fascia of muscles beneath. I have always found that where the skin is most free the irritation is the least. The skin is the most free on the inner aspect of the arm,

and this spot should be selected, unless it is quite loose in other parts which is often the case. Picking up a fold of the skin, in line with the arm, the needle should be introduced from below upward and parallel with but above the muscle—that is, simply in the areolar tissue and never into the muscle. The needle should be pushed in to its full length, then partially withdrawn and afterward the solution injected *slowly*. I have always made it a rule when injecting ergot to gently stroke the arm from below upward over the mass of fluid until there was no bulging, for this movement undoubtedly assists the absorption. After the injection the patient should take a comfortable recumbent posture and remain as quiet as possible. This at least aids in calming an excited circulation and it is quite likely, too, that pursuing this course, he will in a short time fall asleep. I trust that I have made myself clear to the effect

1. That ergot has a much wider field of usefulness than is ordinarily given it.
2. That that field is as extended as the distribution of the involuntary or unstriated muscular fiber.
3. That its most important application, not excepting its action upon the uterus, is as a tonic to the vascular system.
4. That, therefore, its especial forte in medicine is in antagonizing congestive states, and
5. That, exerting itself upon the entire vascular system, holding the reins as it were over the blood vessels in all parts of the body, it is truly, as I before suggested, *The equalizer of the circulation*.

634 N. Sixteenth St., Philadelphia, 1885.

POSTSCRIPT.

Although this paper was written more than 17 years ago (autumn of 1885, but never before read, nor published), the general law then enunciated as governing the most important application of ergot to therapy is only modified, as expressed in my recent papers, by emphasizing what is clearly implied in this paper, though not as clearly expressed, that it is the *abnormally dilated* blood vessels upon which it especially acts, hence tending to produce equilibrium of the circulation.

Long before this paper was written, I had formulated and frequently verbally applied to ergot the phrase which to-day I regard as best characterizing the drug, "The equalizer of the circulation."

The fact about it all that most perplexes me is

that, seeing as clearly then the law, I did not at once see more of the individual applications of the law. It is true that, until a year later than the time of writing this paper, I dealt almost wholly with the mental and habit classes, as indicated in the paper, which accounts in part for the slowly widening application by me of the theory. However, I seem to have followed the usual order, from one or a few particulars a generalization, and, later, a demonstration of the relation of other particulars to the generalization. It is, moreover, quite certain that you and I hereafter, and others after us, will apply many particulars to this generalization which have not yet been applied.

I have been interested in reading this old paper, which has lain all these years in my office, buried and forgotten, with other old manuscript, and accidentally resurrected since the reading of my recent paper (*Journal of the American Medical Association*, March 21, 1903) before the New York County Medical Association, especially in noting the differences and similarity between the two in theory and scope. Those of you who may have heard or read the Chautauqua paper (*New York State Journal of Medicine*, September, 1902) of last summer, or the New York paper of last month may have noted that in this paper I express the belief that ergot acts upon the unstriped muscular fiber through the vaso-motor centers as galvanism, *e. g.*, acts, while in the later papers I say that I believe it acts directly on that fiber as the drug is being carried through the circulation. Quite possibly it does, in fact, act in both ways, but, as between the two theories, I certainly incline now to the latter view. It is notable that in each of the papers which I have written upon the drug (for I find it in a fourth, incomplete manuscript which I wrote 11 years ago) is the account of the remarkable case of the old man treated in Philadelphia in 1878. I am not surprised at this because in every retrospective view I have taken of my experience with ergot this case looms up as the central figure, the first astounding experience with the drug, the beginning, really, of my broad application of ergot to therapy. I would not have imposed him upon you to-night but that I desire this paper to stand absolutely unaltered, precisely as I wrote it in 1885.

I note, also, two or three expressions in which I associate the words "irritation" and "hyperemia" in a way that indicates that I did not as clearly see their true relation then as I have for

many years. I would now say, an irritation or irritability from or dependent upon hyperemia; and this is the key to the explanation of the action of ergot in the class of nervous disorders and in derangements of the function of glands and special organs.

There is not one of the diseases mentioned in this paper as likely, in the future, to be favorably affected by ergot in which I have not since demonstrated the virtue of it; as I have in many others which are not mentioned here.

I was pleasantly surprised to find here the suggestion as to the value of ergot in surgery. As surely as that congestion is the first stage of inflammation, ergot is indicated in all important surgical cases, especially as associated with operative procedure.

The uses of ergot in surgery are:

1. To prepare the subject for anesthesia in order that its undesirable sequelæ may be avoided.

2. To prepare against shock, or to prepare a subject, already seriously shocked, for operation.

3. To prevent inflammation, which must be preceded by congestion, which ergot surely controls.

4. To prevent or control pain.

5. To secure, with the greatest certainty and the most rapidly, repair; and in all these particulars the effect is brought about by the power of ergot to contract abnormally dilated or weak-walled blood vessels and thus to develop and maintain an equilibrium of the circulation.

The importance of equilibrium of the circulation and, therefore, the great value of a drug that accomplishes this desideratum, are not likely to be at once appreciated. If you will analyze a great number of disorders that will most readily occur to you I doubt not you will be surprised at the proportion in which abnormal dilatation of blood vessels, congestion, is the underlying or causative factor, or in which that state develops, in the course of the disease, unfavorable complications. If you will analyze any particular affection that occurs to you and discover in it, as a causative or resultant factor, the element of disturbed circulation, too much blood in one part and, therefore, not enough in other parts, you have found an indication for the administration of ergot.

In proportion as this disturbance of the circulation is recent, the effect of ergot will be satisfactory. If very recent, the action of ergot will be astounding. If the congestion is old, chronic, and, especially, if chronic inflammation has de-

veloped organic or tissue change, the effect of the ergot will be proportionately less marked, but it will be helpful; and persistent use of it may secure the desired result.

If you consider that commonest affection, an acute cold, you will see that it is a typical indication for the drug that equalizes the circulation.

Consider disturbances of glandular action. The great majority of such instances are due to too much blood in the gland, which means that the vessels of the gland are abnormally dilated, hence apply ergot.

Consider again disorders of special organs; even the functions of sight, hearing, smell and taste are immediately disturbed by the state of congestion in their organs or about the central end of their nerves, and restored when that congestive state of the circulation is corrected.

The entire class of inflammatory affections surely indicate the use of ergot, for congestion must be their first stage.

Even the toxins and infectious poisons do not seem to accomplish much until the equilibrium of the circulation is abnormally disturbed.

The extensive class of nervous diseases, so called, depend chiefly upon abnormally dilated blood vessels in nerve centers or about nerve tissue. Spasmodic and convulsive states belong under nervous affections, but I wish to especially refer to them, because, whether their source be central or peripheral, there is an element of dilated blood vessels, for ergot relieves those states. My friend, Dr. Gouley, recently called my attention to one element of spasm, irregular contraction, and suggested that the remarkable effect of ergot seen, *e. g.*, in colic, might be due to its producing in the muscular coat of the bowel regular, in place of the irregular, contractions.

Consider, again, the subject of exudates. They result from plethora of blood vessels and they will only be absorbed by reducing the caliber of those vessels.

I would have you consider, too, that extensive class of disorders, originating in brain, lungs, liver, kidneys, digestive tract, or pelvic viscera, which soon or later, disturbs the function of the heart and often, also, produces in it organic trouble. The fundamental element in all these is abnormally dilated blood vessels; and, too often, the heart itself, as the prominent, conspicuous feature, is irrationally treated by heart tonics and stimulants or depressants, when the prime indication is to restore equilibrium of the circulation by

contracting the dilated blood vessels in remote regions or in the heart center.

So I might go on enumerating classes of disorders or individual disorders, but although the analysis of diseases individually and the application of the theory to each would be the most satisfactory to you and to me, you can see that the night would be spent and the morning come ere I had finished, and already I fear the sound of your President's gavel and I could not endure such disrespect to my theme.

I must let these generalizations suffice for the present and urge you again to analyze for yourselves the individual case and make your own application according to the principles laid down.

I have not spoken of the uterus, for you all know the use of ergot there; and I have barely hinted as to the muscular coat of the bowel, though it has many applications there. I have referred to certain disturbances of the heart. Upon the heart itself, the weak, dilated or exhausted heart, ergot will demonstrate its power, gentle, positive, effective, a power vastly more desirable to use than that of strychnine, because it not only acts upon the heart but upon the remote disorders of circulation that have been impeding its free action. Some have marveled that I should commend ergot in high arterial tension, but they did not consider that that tension was due to a heart acting too strongly because of *central irritation from dilated blood vessels* and against *an engorged capillary and venous circulation*.

Remember always that ergot does *select*, if I may so term it, to act upon the *relaxed* unstriated fiber. It will not accentuate the normal, or strongly acting, unstriated fiber, unless it be in the *functionally active* uterus. That is the one *caution* I would give you. Have no fear of producing ergotism from the use, in reasonable dosage, of the solution I now commend. An experience approximating 30,000 hypodermic injections of ergot has never developed a suggestion of it.

I would leave this one thought with you: Ergot is to the weak, relaxed, unstriated fiber, what good air, pure water and the glorious sunlight are to the weak, blanched, debilitated creatures, vegetable, animal or human that have been deprived of them; to whom they bring strength, force, energy. These things, applied in proper degree, do not harm the normal. Neither does ergot in proper, reasonable dosage harm the normal unstriated fiber; but it brings to that which

is relaxed, weak, debilitated, strength, force, energy. Above all keep in mind that it *equalizes and normalizes the circulation*. This is the inevitable and the inestimable function of ergot.

In the practical application of ergot the character of the solution which is used is very important. At my special request, several of our leading pharmaceutical houses are now endeavoring to produce an ideal solution, which shall have these characteristics: fully representing the drug; concentration, that the quantity necessary to produce a given effect may be small; yet sufficiently thin, that it may be readily absorbed; unirritating, that it may not give pain when administered hypodermically, which is the manner of application that I earnestly commend, and that it will not produce inflammation in the region of application; and aseptic, that it will keep sterile a reasonable time; such solution to be marketed in small containers, one-half, one and two ounce, securely sealed, to be convenient to the user. It is desirable that all such solutions should be of uniform strength. I trust this may be accomplished speedily. Until it is, I commend to you this solution: Squibb's solid extract of ergot, one dram, dissolved in sterilized distilled water, one ounce. Filter, and add chloroform, two minims. Of this solution, the dose should be from one-half dram to two drams, as indicated. The smaller doses may be repeated several times a day if necessary to secure results desired. The best hypodermic syringe with which to give ergot is an all glass one with asbestos packing, as being readily cleansed and kept sterile. The application may be made subcutaneously as suggested in the old manuscript; but for many years I have preferred the introduction of the needle and fluid into muscle (*always slowly*), the most convenient being the deltoid of the left arm. It is so long since I have seen such inflammation about the point of application, as was common in the old days, that I have practically ceased to think of it. If, having solution, syringe and needle sterile, local inflammation does occur, it will most likely be due to exceptional lack of tone in the circulation of that region, and will not occur after a few injections have improved the general and local vascular tone.

April 7, 1903.

The lowest bid for the construction of the proposed new Harlem Hospital at Lenox Avenue and One Hundred and Thirty-sixth Street was made at \$367,385.

UNITY OF THE MEDICAL PROFESSION.

Abstract of an address by Dr. A. T. Bristow, President of the State Medical Society, at a dinner of the Associated Physicians of Long Island, at Southampton, June 13, 1903.

ONE of the most important things for the medical profession to-day is unity. Unfortunately, as you know, dissensions have existed in our ranks in this State for many years. Originating in a question of principle, the strife has been correspondingly bitter. Religious wars are notorious for the bitter ferocity with which they are waged and men have never been so cruel to each other as in those historic conflicts which have been waged about an idea which had its roots in the moral nature of men. We wage war in behalf of a neighboring island, and victor and vanquished soon forget the brief animosities engendered, but it has taken decades to efface the recollections of the wars of religion. A battle for principle has many resemblances to the religious war. Such has been the battle of the code and each side has striven for the right according to the different points of view of the contestants.

When I was elected President of the State Society last winter, the prospects of unity seemed remote. The question of the code was involved in much obscurity and no one seemed to know just what its position was. Moreover, the State Association insisted as a *sine qua non* to union that the State Society should apply for a new charter together with the Association. This seemed to me the most insuperable barrier to union, for the State Society prized its old charter, now nearly one hundred years old, and refused to do anything that would cause it to lapse. This was a question of sentiment, to be sure, but let me remind you that many of the things that we hold most dear are matters of sentiment, that is to say, affairs of the heart rather than of the intellect. Patriotism is a sentiment, so is the affection of parents and children, and so is religion in so far as it concerns the heart rather than the head. Our most precious possessions are thus matters of sentiment, so it was not strange that the State Society should be unwilling to allow its ancient charter to lapse. We are but a young country. We have few associations with a remote past, and those that we have we should cherish. I do not believe that the Association appreciated this feeling, nor perhaps, foresaw it. On the other hand, it seems to me a perfectly natural and proper feeling on the part of the Association that the members should wish for some legal rec-

ognition of the reunion. Otherwise, it would be necessary for them to abandon their organization and join the State society as individuals, something, in my opinion, that the State society will by no means expect. Inasmuch as both parties to the dispute of thirty years ago contended for principle as each saw it, neither side should now be penalized for the contention which is a thing of the past, and feelings of mutual concession and toleration should prevail. All ought to try to assist those who are working for unity and not be on the lookout for unreasonable objections, with intent to hinder. It has seemed to me that it might be possible to draw up an act which should preserve the old charter of the State Society and add to this the desirable features of the Association charter and thus comply with the wishes of that body that some legal recognition should be taken of the new order of things. In this way neither organization would perish but the two bodies would simply merge. Unification would, in this manner, be accomplished without loss of dignity on either side and the reorganization would take place as it ought, in a manner honorable to both the subscribing parties, and with undue advantage to neither. If the matter of the charter can be arranged on these lines, as I am sure it can, then there is nothing whatever to keep us apart. The code question has been forever settled by the liberal and progressive spirit shown by the American Medical Association and the profession of this State will be much to blame if it allow ancient prejudice or revived animosities to stand in the way of unity. It will not be long before this whole question will come up before the rank and file of both societies, and it will then become the duty of every man to see to it that nothing but matters of principle shall allow this breach in our ranks to continue. No such question exists. Every one recognizes that. All men say that we ought to unite. Let me then urge on every one here that it is an individual duty which will soon confront us. If you wish unity you can have it for it will be a question of the ballot. If you do not get it, do not blame the conference committee, nor the officers of the two societies. Blame yourselves, for there the responsibility must finally fall.

The resources of the Floating Hospital and of the Seaside Hospital have been taxed to the utmost during the recent hot weather in July. The Guilds of these hospitals have appealed for additional funds for carrying on their work.

SCARLATINA.

BY F. E. LAMBERT, M.D.,
of Jersey City, N. J.

Read before the Practitioners Club of Jersey City, Jan. 13, 1903.

THE paper presented to you this evening is based upon a study of the literature of scarlatina and upon personal experience with the disease.

From the viewpoint of the medical practitioner there is no disease which affords a wider scope for scientific effort and a compulsory substitution of well-regulated laws of prophylaxis for the slipshod methods of treatment at present too often pursued.

No doubt we can recall deaths of beloved ones due to this enemy of childhood, and in some instances probably the unfortunate results are laid at the door of the physician.

It is within the power of the physician to practically preclude the possibility of spreading the contagion, providing the family is properly instructed in every detail of disinfection.

In combating scarlatina there are several important factors to which one must devote careful consideration if he would win success. These are contagion, disinfection, complications, sequelæ and treatment.

The diminution of the former frightful mortality from diphtheria by the fearless use of antitoxin has placed scarlatina first of the most dangerous and important diseases of childhood. Its formidable character awakens one's thinking powers introspectively and retrospectively. Have we made the proper use of every means known to medical science, thereby affording the best protection to the patient?

Historically, scarlatina dates back to 600 years B. C.

Thebes plague at Athens occurred 430 B. C. Scarlatina was recognized in England in 1661; in Scotland, 1716; introduced into North America in 1735; South America, 1829; Greenland, 1847.

Causation.—It is still a question. Streptococcus gets the credit. The communicability of scarlatina is well established. An erroneous impression prevails among the laity that scarlatina is a mild form of scarlet fever. The physician should correct this error.

The contagium is found in the emanations of the body and exfoliated epithelium. The tenacity with which the germs adhere to textures read-

ily explains the contagion and the difficulty in destroying its cause. The virus may be carried by various articles, such as books, toys, letters and fabrics. I recall the death of an only child, the disease being communicated by the handling of a curl which had been taken from the head of a child several years deceased.

The physician and nurse may convey the contagion. Domestic animals and food are common carriers, milk taking the lead. Two epidemics in England in 1885 were caused by milk from cows said to be suffering from a fever having many characteristics of human scarlatina.

The route of infection is probably the respiratory and alimentary tracts.

Children of either sex are prone to the disease, the proportion being in favor of the female, eleven to six. Infants under one year of age are almost immune. The liability to the disease progresses from one year to seven, after which susceptibility lessens. It has not been proven that the disease is infectious during the incubative stage. This period varies from a few hours to fourteen days.

Stage of invasion is ushered in usually by vomiting, although the initial symptoms may be chill, convulsion or sore throat. Temperature ranges from 101 to 107 or 108. Pulse 100 to 160.

The rash usually makes its appearance from six to thirty-six hours after invasion; rarely from three to five days. It is a papular, punctated, trythematous rash, first seen on the chest, neck and arms, then spreading to the lower extremities. Its color varies; usually a bright red or it may be so light as to be hardly distinguishable. It usually reaches its height on the third to the fifth day. On drawing the finger nail across the rash, the well-known white line is left. The face presents several marked features. Bright eyes, injected conjunctiva. The red cheeks are in marked contrast to the pale circle around the mouth. The rash may make its appearance in out of the way places, such as the extensor surfaces, over the trochanters, elbows or knees.

Complications and sequelæ.—Postscarlatinal nephritis and middle-ear diseases play the most important part in complications; also hyperpyrexia, convulsions, rheumatism, ulcerative stomatitis, meningitis, endocarditis, pericarditis, peritonitis, pleuritis, otitis, peripheral neuritis, paralysis and pneumonia. Occasionally in the angiose type the tissues external to the ear become inflamed, and pus dissects down the neck between the muscular layers. Periostitis of the squamous and petrous portions of the mastoid

process are of the rarer class of complications; also thrombosis of the lateral sinus, and thrombosis of the cerebral veins; cancrum oris, phlegmasia alba dolens, symmetrical gangrene of the extremities, perforation of the soft palate and septum of the nose.

Pathology.—Autopsies reveal the following pathological condition of the kidney: In a patient who has died early in the disease the kidney presents a slight macroscopic change; but microscopically exhibits degeneration of the epithelium of the convoluted tubules. If death take place at the height of the disease the kidney is enlarged, flaccid, pale or red from hemorrhage or congestion.

The most frequent type is postscarlatinal nephritis, known as glomerulo nephritis. In some cases interstitial changes take place. Congestion of the vessels and fatty degeneration of the epithelium are present in practically all forms of kidney lesions. The changes that take place in a greater or less degree, are a contraction of the interstitial tissues. The vascular changes are congestion of the Malpighian tufts and smaller vessels of the cortex, a hyaline degeneration of their internal coats and increase of nuclei in the muscular layer, producing narrowing and obliteration of their channels. An increase of leucocytes occurs around the afferent arterioles before they penetrate the M. capsules, thereby hindering the circulation. The tubules become more or less blocked with epithelium, leucocytes and bacteria, ending in fatty degeneration.

Bacterial invasion of the middle-ear may take place through the Eustachian tube, naso-pharynx, lymphatics or along the vessels. If sloughing takes place the destructive changes many times cause the loss of the drum, ossicles and parts of the mastoid extending to the dura, resulting in complete deafness of that side.

Desquamation.—The period of exfoliation of the dead epithelium is attended with the greatest danger of infection. It is usually completed in mild cases within two or three weeks. The severe cases extend over several weeks or months, the hands and feet being the last parts to desquamate. The mildest case should be isolated and quarantined for six weeks, and the severer cases sometimes for several months.

Symptoms.—Chill, vomiting, occasionally a convulsion, headache, muscular ache, sore throat, fever, tongue coated, papillæ red and elevated above the yellowish white coating; the efflorescence of the throat sometimes precedes the enlargements of the tonsils. The tonsils are red

and swollen, with small yellow patches blocking up the follicles.

Temperature.—The rise in temperature and effusion of the rash is indicative of the severity of the disease. The decline of the fever is coincident with the diminution of the rash. The mildest cases may be followed by the severest complications.

There are three types of the disease. Scarlatina, simple or benign; scarlatina, angiosa or septic, and scarlatina, malign or toxic.

Treatment.—The treatment resolves itself into symptomatic, prophylactic and expectant.

The room should be stripped of all furnishings and draperies and placed in the best possible sanitary condition for ventilation and sunlight; temperature should not fall below 58° or exceed 68°.

Faultless nursing insures success to the physician's efforts in combating this disease, and in warding off complications. Mild cases need little or no medicine, but attention must not be relaxed until the patient is out of danger. Daily examination of urine and inspection of throat and ears should not be overlooked. Daily bathing with tepid water and castile soap assists the sluggish functions of the inflamed and partially paralyzed condition of the skin to eliminate the toxins and at the same time reduces temperature. Cold sponging controls hyperexia. If not, small doses of phenacetine are advised. Delirium yields to ice applications to the head, with the administration of camphor monobromate, two grains two or three times daily. In the ulcerative type, irrigation of the throat with a saturated solution of boracic acid or Condy's fluid are sometimes used. The earache is best treated with hot water douching (temperature 120), every three hours, until pain subsides. The itching that accompanies the rash is allayed by rubbing the body with pork rind or carbonated ointment.

On my first visit I give calomel purge. In the majority of cases, hydrate of chloral and acetate of ammonia with spirits of ether nitrosi and syrup of lemon. If the kidneys are sluggish, one m. fluid extract of digitalis three times a day to a child five years of age until secretion is well established. Milk diet or liquid nourishment is absolutely imperative for three weeks in mild cases, and four to six weeks in the severe type. Adenitis usually requires no treatment. Ice or hot poultices will relieve the pain. Iodine is sometimes used with success. If pus forms, an early incision is required.

Rheumatism.—Aspirin internally and local ap-

plication of oil of wintergreen will be sufficient to control pain. The joints should be wrapped in flannel.

Postscarlatinal nephritis is the most important and dangerous complication. Use milk diet, supplemented by one to three pints of alkaline water each day, and digitalis associated with acetate of ammonia. Hematuria is controlled by tannin—a tablespoonful of 1-per-cent. solution three times a day. Mild purging and sweating, not together, but alternately. Washing out the bowels with salt solution every three hours dilutes the toxins and favors elimination. In acute or chronic nephritis, water and easily digested diet, administration of galic acid or ergotine associated with tannic acid, with instructions to avoid chilling are usually sufficient.

Disinfection.—Thorough and complete disinfection is imperative to restrict and control scarlatina.

Bear in mind that the disease is dangerous and the contagion difficult to destroy, and that it may become epidemic and endemic. "Disinfectant" is a misnomer applied to many of the so-called "germ destroyers." Formaldehyde gas ranks first as a disinfectant. Iron and steel are attacked by formalin, which is a 40-per-cent. solution of formaldehyde. Gilt, wool, silk, copper, brass, zinc and silver are not. A 60-per-cent. solution is known as volzin. Formaldehyde gas generators can be obtained from the Kny-Scheerer Company, New York, and Charles Lentz & Sons, of Philadelphia.

The room should be kept closed three or four hours after disinfection. Formaldehyde gas is obtained from oxidation of methyl alcohol by means of a special lamp constructed for this purpose. The New York and Chicago Boards of Health have given up all other disinfectants and are using formaldehyde gas exclusively.

The spread of this disease is due in the greatest measure to the careless management of the sanitary conditions of our public schools and the lack of laws restricting the communicability of this disease. It is my opinion that the enactment of a law which would require the appointment of a commission by the Board of Health for a daily medical inspection of public schools, with enough assistants, so that one could be stationed at every school house until the quarantine is raised is necessary. Then, and not until then, can we control this formidable disease of childhood.

Brief citations of several interesting cases from personal experience are, viz.:

I was called in consultation to a case of scar-

latina with the following history: Age seven, male. On June 6 the child was running about and apparently well. Eleven P.M. the same day the child began vomiting and before the doctor arrived the patient became delirious. The rash, scarlet in color, completely covered the body, which changed in a few hours to a dark purple, more or less mottled. I saw the child in consultation the second day of the disease. Patient was in a state of collapse and coma. Temperature 108° , pulse thready, Cheyne-Stokes respiration, cold extremities. There was a constant jerking of the entire right side. Trismus was present. Child died two hours later. From the stage of invasion until death nineteen hours elapsed.

CASE 2.—Child four years old, female. Initial symptoms began with persistent vomiting, which could not be controlled. Glands enormously swollen, throat blocked and tonsils covered with thick grayish membrane, rash not pronounced. Child relapsed into a stupor, low, muttering delirium, and died on the third day.

CASE 3.—Male, age eighteen. After a football game the patient was seized with a severe chill. On the following day I was called and found the patient complaining of a sore throat and headache. Prescribed ordinary remedies for cold, and told the father to let me know in the morning if the patient did not improve. Heard nothing from the family until the second day, when I was again sent for and found the patient delirious. After making a careful examination I was unable to make a diagnosis. On the fifth day of the disease I noticed small, red patches over each trochanter and the same kind of a patch over the elbows. I made a diagnosis of scarlatina. Delirium continued for five days and was relieved by shaving the hair and applying an ice cap. The throat could not be treated owing to the delirium. The patient made an uneventful recovery.

CASE 4.—A girl, nine years of age. Scarlatina was ushered in with a chill, vomiting and sore throat. The glands of the neck were enormously swollen. Temperature never reached 105° until a few hours before death. In this case the complication diphtheria was suspected, and I gave two injections of antitoxin, with no abatement of symptoms. The rash appeared upon the chest and disappeared in two days. From the first day the child was in a stupor, from which she could be aroused with difficulty, but immediately relapsed if left undisturbed. Treatment had to be abandoned on account of the strenuous opposition of the patient. The child died on the ninth day.

SOME INDICATIONS FOR INDUCING ABORTION AND PREMATURE LABOR.

BY WILLIAM P. POOL, A.M., M.D.

Read before the Brooklyn Gynecological Society, April 3, 1903.

CONTRACTED PELVIS.

THE line of procedure in pregnancy complicated by contraction or deformity of the pelvis is sometimes difficult to draw. Symphysiotomy may be successfully performed in cases of general contraction when the true conjugate is as short as 3 inches, or when, in antero-posterior flattening, the lateral diameters being normal, the true conjugate is $2\frac{3}{4}$ inches. But it should not be attempted when the contraction is greater than this. It is of the first importance to have a knowledge of the pelvic dimensions early in pregnancy, and to that end, all primiperae should be examined not later than the fifth month. When the measurements are found to be below those mentioned, there is the choice of immediately emptying the uterus or of doing the Cesarean operation just before term. In the interests of the mother the former is preferable, but other things being equal, the accoucheur must be guided by her wishes. When a lesser degree of contraction exists, the true conjugate being from 3 to $3\frac{1}{2}$ inches, induction of labor before term finds its greatest usefulness. Delivery of a fetus of normal proportions either by forceps or version under such conditions is usually difficult, and sometimes impossible, and is frequently fatal to the child. It has been stated that induction of labor at the thirty-sixth week causes a fetal mortality of 40 to 50 per cent., but this seems to be a much larger proportion than is the case when the subjects are properly selected, when the operation is done under the best conditions, and when proper care is given to the child after birth. Induction of labor at this time or even earlier is certainly not attended with greater danger to the child than the attempt to force the head through the contracted canal at term, and it is much less dangerous to the mother. Furthermore, it does away with symphysiotomy with its possible serious consequences. While symphysiotomy undoubtedly still holds a place in obstetric surgery, it is an operation to be avoided rather than sought in the interests of the mother, whose welfare is, after all, our first care.

NEPHRITIS.

Chronic nephritis is almost invariably an indication for the termination of pregnancy in the

early months. If there be renal insufficiency of any extent, the patient is in danger almost from the start, as rapid and permanent retrograde changes in the kidneys are not uncommon, and the already impaired organs are sure to be still further damaged if pregnancy be allowed to proceed. The presence of granular casts, or tubular epithelia and detritus in the urine together with anemia and disturbance of vision, even though excretion of toxines, at the time, be normal, is a sufficient indication for early abortion. We have to deal not so much with a present as with a future condition. Moreover, it is rare that a living and healthy child is born when this complication exists. Acute toxemia, or so-called pregnancy nephritis is a condition more immediately dangerous because of its sudden onset and rapid fatal results. When this threatens in the early months of pregnancy, before viability of the child, procedure is governed by many considerations. The mere presence of albumin in the urine, even in large amount, does not of itself demand abortion. The excretion of urea is usually regarded as the best guide to the patient's condition, and yet this may be greatly diminished for a considerable time without ill effects. The daily amount of urine passed is of importance, and anything less than 50 oz. when albumin is present should be regarded with suspicion. But no one of these things alone is an evidence of grave danger. It is of the utmost importance not only to examine the urine at frequent intervals, but also to see and examine the patient often. An increase in the rapidity and tension of the pulse, nervousness, headache, stomach disturbance, anemia, and loss of weight are more significant than urinary changes; and when these symptoms persist in spite of treatment, abortion should not be delayed. If urinary findings and symptoms of a grave nature appear after the eighth month there is an additional indication for inducing labor. That the fetus shares in the toxic condition of the mother is shown by the fact that so many of these children are still born or die shortly after birth. Albumin may be found in their urine, and autopsy discovers in their kidneys a state of irritation similar to that in the mother's. The longer the fetus is exposed to the source of intoxication, the less are its chances of life, and the risk in prematurity is smaller than if the case be allowed to take its natural course.

If an eclamptic seizure occur, at whatever period of pregnancy, the first indication is to empty the uterus. Blood-letting, infusion, and the administration of various drugs are valuable ad-

juncts to the treatment, but it must be borne in mind that the primary cause of convulsions is the presence of a fetus in the uterus, and that in the great majority of all cases the convulsions cease with the delivery of the fetus. A rapid delivery under chloroform anesthesia will, as a rule, involve less shock than a protracted labor. It also causes some hemorrhage, and thus fulfils two indications. Bleeding in moderate amount should be encouraged rather than checked, and infusion of salt solution may follow.

DIABETES.

So rarely is this disease an accompaniment of pregnancy that it need scarcely be mentioned in this connection. It has been estimated that more than 95 per cent. of diabetic women are sterile. But when pregnancy does supervene upon this disease, and the case goes on to term, the results are most fatal. Nearly all such patients die within the puerperal period, labor acting like any surgical operation upon a diabetic. Spontaneous abortion is, however, the rule, a case rarely going beyond the third month. It is best to terminate pregnancy as soon as it is discovered in a woman having diabetes. The special interest attached to this rare complication is that it may be confused with a form of glycosuria which develops during pregnancy. Experiments by Lantz have developed the fact that there is a diminished metabolism of sugar during pregnancy and the puerperium, which may account for its transient appearance in the urine. Two such cases have been observed by the writer. In neither was there any symptom of diabetes previous to pregnancy, and sugar disappeared from the urine of both within a month after labor. Its first appearance in both cases was at about the fifth month, and in one instance it persisted in the quantity of about 10 per cent. by volume during the remainder of gestation. There were no other symptoms except a marked increase of urinary secretion and accompanying thirst. Neither patient apparently suffered harm from the passing condition.

HYPEREMESIS.

The pernicious vomiting of pregnancy presents a most perplexing problem, because of the uncertainty of the course that the disease will take. Many cases yield to dietetic and general therapeutic treatment, while others, for no apparent reason, become rapidly worse, and sudden failure of the heart and disorganization of the nervous system place the patient beyond the possibility of help almost before her true condition is recognized. This disease has been divided into

three stages. 1. Vomiting and malnutrition. 2. Attended by rise of temperature and increase of pulse, diarrhea, emaciation, and attacks of syncope. 3. In which cerebral symptoms appear: delirium, hallucinations, etc., followed by coma and death. This division, however, does not apply in many cases, or if the various stages are present they are so intimately connected that they cannot be distinguished. If the regulation of diet and hygiene, and the use of medicinal agents fail to relieve, surgical measures should be resorted to promptly. This does not mean the immediate induction of abortion. The cause may sometimes be found in a retrodisplacement of the uterus, the correction of which ends the trouble. Or if an erosion or inflammation of the cervix be present, its proper treatment gives relief. The frequent application of a solution of nitrate of silver to the vagina and in the cervical canal may be beneficial. A partial dilatation of the cervix with the steel dilator, or better, with the finger, when it be possible, has cured many cases. But if, in spite of these measures, the symptoms continue, abortion alone remains, and its timely induction cannot be too strongly urged.

The only fatal case of this disease which the writer has seen illustrates the rapidity with which it may undermine the patient's strength and vitality. A woman, thirty-three years of age, in her third pregnancy; of previous good health, though of neurotic disposition. There was a history of persistent vomiting during the two previous pregnancies, although she had reached term and had been normally delivered in each case. The trouble began at about the fourth month, at which time she was well nourished, and the heart and kidneys were normal. Nausea and vomiting were not continuous, but came in periodical attacks. An attack would last two or three days and subside, leaving the patient perfectly comfortable. Careful examination failed to discover any specific cause for the disturbance. Treatment, general and local, was applied without any apparent effect either in relieving or preventing the paroxysms. She rallied well from the attacks, and aside from some loss of weight, seemed to take little harm from them. In the intervals, which lasted from four days to a week, she was able to take and digest a considerable amount of nourishment without ill effects, and gained in strength and general condition. At the end of a month, or at about the fifth month of pregnancy, she suffered an attack more violent than those before. Vomiting and retching were almost continuous, there was rapid loss of strength, the

heart action became rapid and feeble, temperature subnormal, and she was in a state of collapse within 24 hours. The uterus was quickly emptied, but the patient did not survive the operation.

HEART DISEASE.

That an additional strain is placed upon the heart during the period of pregnancy is proved by the fact that at this time it undergoes physiological hypertrophy, and it is not uncommon that symptoms of insufficiency develop during pregnancy, in a heart which is already the seat of organic disease. If there be a sudden loss of compensation, spontaneous abortion is apt to occur, but more frequently, in advanced lesions, the heart is gradually weakened under the strain, until we are confronted by a most serious condition: the necessity of a surgical operation in the presence of an insufficient heart. Actual labor furnishes a temporary stimulation to the heart as it does to the vaso-motor system, so that there is less danger at this time than in the period immediately after. The general relaxation which follows the delivery of the placenta, together with the increased pressure in the venous circulation, caused by the emptying of the uterine sinuses, makes this the most critical moment. Even though the patient survive labor, and cardiac compensation be re-established, it is probable that permanent injury has been done, and that her life has been shortened by the ordeal.

It has been said by Peter that a woman having heart disease should not marry; that if she marry, she should not be allowed to become pregnant; that if she shall have passed through one pregnancy successfully, she should on no account become pregnant again. But it would seem that no such general rule can be applied to all cases. The indication is found in the form of the lesion. The mere presence of a murmur is not sufficient reason for preventing or terminating pregnancy, but the character of the murmur, and especially the condition of the heart wall, are the indications by which we must be guided. A mitral systolic murmur may exist for a lifetime without seriously affecting the heart function, and when it is found alone, and uncomplicated by dilatation of the right heart, it does not, as a rule, call for interference. The aortic murmurs and mitral stenosis, particularly when accompanied by pulsation of the veins in the neck, are of more importance, and when these are present in marked degree, early abortion should be the rule. Of greater significance still is a dilated heart wall as evidenced by an enlarged area of dullness on per-

cussion, displacement of the apex beat, and weakness of the first sound at the apex. When this condition is present, with or without murmurs, or when cardiac insufficiency is present or has at any time before existed, pregnancy should not be allowed to proceed.

TUBERCULOSIS.

The influence of pregnancy upon tuberculosis is a matter of common experience and we not infrequently see a rapid advance of the disease during the period of gestation and lactation. This is often true, not only in those cases which are the subjects of actual phthisis, but in many who have merely a tubercular diathesis. Pregnancy is a recognized exciting cause of tuberculosis in women having a tendency to this disease, and a woman already suffering from incipient phthisis who becomes pregnant frequently presents a distressing example of the rapidity with which a patient may be hopelessly overcome by it. In other words, a case, which under proper hygiene and proper feeding, might be cured, may develop in the course of pregnancy into one that is beyond cure.

This, of course, is not true in every case, but it happens often enough to make child bearing a menace to the life of a phthisical woman. Some patients having the disease in its less acute form, who live under the best conditions, and with whom the advantages of climate and good treatment are possible, may pass through one or two pregnancies without apparent immediate ill effects, but the frequent repetition of pregnancy even in such hastens the course of the disease.

There is another though much more remote contingency to be considered: the subsequent development of tuberculosis in the child. It is rare that a child is born with tuberculosis, even when the mother has the disease in an advanced stage. A case is reported by Williams of Johns Hopkins, in which a woman died of tuberculosis within a few days after delivery. Autopsy revealed that the uterus was covered externally with tubercular nodules, and that its lining was the seat of several tubercular ulcers, although the placenta was not infected, and the child was apparently free from the disease at birth.

But the frequency with which tuberculosis occurs in infancy and childhood is alarming. Still has reported that in 769 post-mortems upon children under twelve years of age, tuberculosis was present 269 times, or in 35 per cent. of the cases, and Hand, in a series of autopsies upon children covering a period of 10 years, reports the pres-

ence of tuberculosis in 34.3 per cent. In the majority of these cases the primary infection occurred in the cervical glands, from which it spread to the lungs and other organs. It has been observed by Pottenger that even though the disease does not assume an acute form in childhood, a very large proportion of children having enlarged glands of the neck develop active tuberculosis in later life.

While it is difficult to obtain accurate statistics of inherited tendencies to this disease, it is certain that in no other, with the possible exception of syphilis, is heredity so sure and potent a causative factor.

Medical research, aside from the general application of hygienic principles, has as yet failed to discover any cure for tubercular infection.

With these facts in mind why should we certainly jeopardize the life of the mother in order to save the very uncertain life of the child, who, at best, will be born with a heritage of disease?

A woman having an active form of tuberculosis, as evidenced by physical signs, and by the discovery of bacilli in her secretions, should not become pregnant. If conception has occurred, it would seem advisable to terminate pregnancy at the earliest possible time.

147 Clinton Street.

TREATMENT OF THE SUMMER DIARRHEAS OF INFANTS.

BY C. LEGRAND KERR, M.D.

Read before the Brooklyn Medical Society, June meeting.

WITH the one exception of infant feeding, there is no subject within the realm of pediatrics over which there is such a diversity of opinion and uncertainty, as to the proper measures to pursue, as there is in the treatment of the summer diarrheas of infants. The subject must always prove of great interest until such time arrives when we shall have a method of relief which will prove reasonably successful through a succession of seasons. The evident success of a line of treatment during one year, and its marked failure as a means of relief the next season, under apparently similar conditions, precludes the too-ready acceptance of any method or means as a routine treatment of all cases.

Summer diarrhea may be a rather unfortunate

term, but its extended use has come to mean so much that we may generally accept it.

One advantage of the term is that it defines the weather conditions under which it occurs, namely, summer.

It is a well recognized fact, that all infantile diarrheas are worse during the heated term. This need not make us uncertain as to treatment, which should be vigorous from the start.

In taking up this subject we realize that local conditions force upon the individual practitioner certain limitations, and so I have sacrificed scientific completeness somewhat to give to you that which this Society wishes most—the experience of its own members, on a practical subject.

So much can be accomplished by prophylaxis that we shall take up that phase of the treatment first.

Other things being equal, the infant which shows the greatest resistance to diarrheal disorders is the one which is breast-fed.

This principle needs to be impressed upon that growing class of women who rob their offspring at the very start of life of its best chance of health, and perhaps of existence itself.

The action of the breast milk is two-fold; it imparts a partial, but natural immunity to the infant. Secondarily, if the proper care is used in accord with our present knowledge, a food is supplied which is natural, unirritating and reasonably certain to be untainted.

While, as a general principle, it may not hold true that feeding by a wet-nurse gives the child as much immunity and comfort as when fed by its own mother, I believe that as far as the diarrheal disorders are concerned, there is no appreciable difference. This statement, however, assumes that every known precaution has been taken to determine the nurse's fitness to act as such, both physically and mentally.

When circumstances are such that we are forced to the necessity of hand-feeding we meet this proposition. Forced to give up a food which is admirably adapted to the intestines, we compel the intestine to adapt itself to the food. The final result of this is that the foundation is laid for the future development of gastric disorders. Add to this the bacterial contamination of the diet and the chances of trouble are great.

The intestinal disturbances in infants will never be ably handled unless we remember the very intimate connection between gastric and intestinal disorders.

A diet adapted to each individual case as re-

gards quality, quantity, and preparation are what we most need. It is not my purpose to treat this feature at length; the rapid strides made along these very lines make us ever watchful. Then, again, the social status of our patient, the mental and financial capabilities of the parents, all determine largely just what measures we may adopt. But from that period immediately following the first few weeks of infancy the largest element of danger is from the disorders of digestion.

There may be some good reason to suppose that the summer diarrheas of infants are caused by the *Bacillus dysentericæ*, Shiga, but it has not been sufficiently demonstrated. This we do know, that nearly all of the intestinal bacteria become active when conditions are right, and some become very virulent.

Conditions favoring their activity are influenced largely by gastric irritation, catarrhal conditions of the stomach and intestine, improper feeding, neglect of proper hygiene (especially personal), conditions causing a lowered vitality, and the absence of the natural tone of all the mucous membranes, which is brought about by humidity.

In the treatment of this stage, avoid the occurrence of any of the preceding conditions and in addition, reduce the amounts of both fat and proteid in the diet as soon as the temperature (atmospheric) reaches 75° F.

This is a simple procedure: instruct the mother to make up the milk in the usual way, but to give only three-quarters of the usual amount, adding either plain sterile, or a cereal water to bring it up to the accustomed amount.

It is necessary that the most absolute cleanliness be observed in the preparation of the food, remembering that bacteria are fly-borne and dust-borne as well as milk-borne. When possible, in hand feeding, use the certified milk.

If, in spite of our efforts to prevent it, a diarrhea does occur in a child under two years, we should treat it as the possible beginning of a fatal disease.

The explanation of the mother that the child is teething, should never be accepted as the cause. Teething never causes diarrhea in an otherwise healthy child.

I believe that most of the treatment has been ineffective in these diarrheas because the conditions present and the objects to be accomplished by treatment have not been clearly kept in view. In their place has been a hopeless search and a constantly changing one, for something to stop

the evacuations, a result not always advisable or to be desired.

In the beginning we are dealing with an infected intestinal content, and not an inflammatory condition. What are the indications for treatment?

First.—A weakened power of digestion and tolerance of food. To meet this, reduce the amount of the food. This is best accomplished by an actual reduction to two-thirds of the amount usually given and the substitution of such nourishment as shall not add to the difficulty. That necessitates the withholding of *all* milk. Even in breast-fed infants this rule is imperative. The substitute should be a cereal water and one of the commercial extractive preparations. Why the cereal, and why the extractive?

The cereal starts up a very mild acid fermentation, and an acid media is poor ground for bacterial development. A mild stimulant is helpful at this time and the extractive supplies that need, at the same time nourishing the child. Whatever cereal is used, it must be well cooked; three hours of slow cooking is better than one or two.

Second.—Eliminate the irritating intestinal content. For this use one-tenth grain doses of calomel, repeated every fifteen minutes, for eight or twenty doses, if vomiting is present. If not, a single dose of castor oil is better.

It makes no difference if the child's bowel has been locked up by the use of a neighbor's favorite cholera mixture, the indication is the same; clear out the contents of the bowel.

Third.—Dilute the toxins and thus conserve the strength of the child. To meet this object, give sterile water liberally. Enforce both physical and mental rest, while getting the great benefit which comes with plenty of fresh air and sunshine.

If vomiting persists, apply an ice-bag over the stomach.

There are some things that I believe we might well give up during this stage of the trouble: the use of drugs, other than the two mentioned (of which we choose but one), and the use of the commonly employed white-of-egg-water.

Nothing will become putrid so quickly as the ordinary city egg. It not only tends to become positively harmful itself, but it leaves us uncertain as to whether the putrid stools are due to its decomposition or not.

If the symptoms are not all improved within twenty-four to thirty-six hours we may be certain that we are dealing with an inflammatory

condition, either with or without an infected intestinal content.

If the trouble has advanced to this stage, and it usually has by the time that we are first called, the first indication is for a thorough washing out of the intestinal tract.

A word about the technique may not be out of place, for it is very important, when this procedure is carried out, that it be done thoroughly.

The best position is the dorsal, upon the mother's lap, or the edge of a bed with arrangements provided for drainage. A soft rubber catheter (28 French) well oiled and attached to a fountain syringe is passed slowly and while the water is flowing through it. At least ten inches of the tube should be introduced, and enough water used until it returns clear along the side of the tube. If the water returns forcibly and intermittently it is an indication that we are ballooning the gut. This is undesirable and may be overcome by a simple massage of the abdomen, while the water is being introduced. Use normal salt solution, and at body heat.

I believe that this same procedure is overdone; if we are careful of what is introduced into the system, one or two washings will do as much for us as the indiscriminate use of it.

In those few cases where the main seat of the trouble is in the lower bowel and the passages are composed almost entirely of mucus, daily irrigating may be indicated.

A whole host of drugs have been, and are still used during this stage.

My own experience compels me to limit myself to two: these are bismuth and opium. No preparation of the bismuth suits me better than the subnitrate.

The much used beta-naphthol is more astringent and all astringents are useless, as they add to the inflammatory condition of the membrane, and favor the retention of irritating materials.

Salol, as a type of the so-called intestinal antiseptics, does not act as such and its use simply adds another foreign substance to the bowel.

Bismuth, to be of service, must be used in the insoluble form so as to act mechanically, and must be used in large doses. By large doses I mean ten to twenty grains every hour or two.

Now, in regard to the use of opium. First, how to use it?

Always alone. Never in combination. So much depends upon its intelligent administration, and this can not be done unless it is given alone.

What are the direct indications for its use?

1. When the evacuations are large and watery.
2. When they are small and nagging.
3. When, late in the disorder, the taking of food causes an almost immediate evacuation.

Its use is contraindicated in the stage of active diarrhea before the bowel has been cleared out, or where the passages are foul smelling.

It should never be used in the presence of high temperature and cerebral symptoms.

The stage of collapse, despite its apparent hopelessness, offers an opportunity for the use of measures, which if they are successful at all, will be promptly so.

Here is the opportunity for the large enema, not for purposes of irrigation, but to supply the lack of water and heat in the system. The prompt use of a pint and a half of a normal salt solution at 112° F., to which one ounce of alcohol has been added, this followed by a hot blanket pack, then a half-hour bath at 100° F. and the giving of hot drinks will tide over many cases threatening a fatality.

Temporarily, it is well to stop all medication and give $\frac{1}{4}$ to 1 grain of camphor, rubbed up with glycerine, repeated every half hour.

A flannel cloth wet with the spirits of camphor and laid on the abdomen is also as effective as it is grateful to the patient.

The Department of Public Charities of New York has recommended the construction of a municipal sanitarium for consumption. It is believed that an equipment to accommodate 500 people could be installed at a cost of \$407,000, and that its maintenance would require a dollar a day for each patient. If sufficient land were included to enable the plant to engage in dairying, poultry-raising and the growing of vegetables and fruit, the cost might be materially decreased. The Board of Estimate and Apportionment has been requested to issue city bonds to the amount of \$400,000 for the purposes of the sanitarium. It is planned to locate the plant as near the city as possible, and the Commissioner of Charities believes that a site can be secured not over forty or fifty miles from New York, adapted in every way to the needs of such an institution.

The Charity Organization Society has issued a public appeal for \$5,000 for the purpose of opening a public home for young women who are in the incipient stages of consumption and who would be especially benefited by an opportunity to live in the country during the hot months of the summer.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, June 16, 1903.

The President, CHARLES N. COX, M.D., in the Chair.

There were about 100 members present.

The meeting was called to order and the minutes of the previous meeting read and approved.

The President announced the death on June 7, 1903, of John Frederick Golding, M.D., P. & S., 1875, member from 1894 to 1903.

REPORT OF COUNCIL.

The Council reported favorably upon the applications of the following candidates for membership:

V. S. Pier, P. & S., 1900.

E. G. Van Orsdell, Albany Med. Coll., 1902.

APPLICATIONS FOR MEMBERSHIP.

Applications for membership were received from the following:

Charles Wuest, 1024 Bushwick Avenue, P. & S., 1886. Proposed by H. W. Lincoln; seconded by Wm. S. Hubbard.

Henry W. Post, 597 Bedford Avenue, Univ. Vermont, 1876. Proposed by D. Myerle; seconded by Florence G. Emerson.

Israel Herman, 202 Osborn Street, L. I. C. H., 1901. Proposed by F. E. West; seconded by Wm. S. Hubbard.

Jacobus Loewe, 71 McKibbin Street, L. I. C. H., 1897. Proposed by William Browning; seconded by William F. Dudley.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the Council were declared, by the President, elected to active membership:

Gaetano Bottaro, 266 Union Street.

John J. Wagner, Third Street and Sixth Avenue.

Edward J. McEntee, 144 Union Avenue.

Peter A. Keil, 173 Barbey Street.

Adolph F. Konther, 260 South First Street.

SCIENTIFIC PROGRAM.

1. The National Formulary. By W. N. Belcher, M.D. Discussed by Drs. De Lorme,

Schroeder and Messrs. J. G. Wischerth and A. E. Marsland. Closed by Dr. Belcher.

2. A Report on Present Methods of Administering General Anesthetics in the Brooklyn Hospitals, with Comments. By A. F. Erdman, A.B., M.D. Discussed by Drs. P. F. Pilcher, Hotchkiss, Blake, Buist, F. H. Clark, L. G. Langstaff and F. J. Shoop. Closed by Dr. Erdman.

EXECUTIVE SESSION.

There being no further business before the Society, the meeting was adjourned.

WM. S. HUBBARD, Secretary.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

STATED MEETING, APRIL 21, 1903 (*Continued*).

The President, CHAS. N. COX, M.D., in the Chair.

Paper: *Uses of Ergot*: An old manuscript, to which is added a new postscript. By ALFRED T. LIVINGSTON, M.D., Jamestown, N. Y.

DR. A. T. LIVINGSTON: Permit me to express my very high appreciation of your courtesy in inviting me to address this Society on a subject which I deem of vital import to every medical man, and of much more vital import to myriads whom you and your confreres and your successors in the practice of medicine shall have to deal with, whose lives and futures you will be responsible for.

The first part of the paper which I shall read to-night is an old manuscript, and it has been suggested that possibly you might deem it a discourtesy to you to read a paper which is almost eighteen years old. But this paper was never read nor published, nor offered for publication, and I have felt that in reciprocating the compliment of your president in inviting me to read a paper before you, I could do no better than to read what I believe to be the first paper ever written upon the really broad therapy of ergot. I hope you will bear in mind that this paper was written in the youthtime of my medical life.

DISCUSSION.

DR. G. D. LOMBARD: Following the suggestions received by listening to a previous paper read by Dr. Livingston on the broader therapeutic application of ergot, hypodermatically adminis-

tered, I took the opportunity in private practice to apply this drug hypodermatically in a series of cases of acute alcoholism. The majority of these cases were ones in which the alcoholism supervened upon a period of protracted use of alcoholic stimulants, probably from one to three weeks' duration, in persons who may be termed periodical drunkards. Several of these cases I had had opportunity to observe previously, under the ordinary régime—the usual sedative drugs which we all use and advise—and I found that the hypodermatic administration of ergot produced two notable results: First and foremost to my mind was the practical prevention of the violent nervous symptoms which so often supervene toward the end of a debauch, and an almost instantaneous relief of these nervous manifestations, if they were already present.

Secondarily, and it might seem almost of equal importance to the effect which I primarily mentioned, was the tendency to immediate sleep, or sleep within thirty minutes after the administration of the ergot.

It may interest you to speak of the most recent case in which I applied this drug. I was called upon to see the patient after he had been for thirteen days taking, as I was able to ascertain from the record on the hotel register of liquor sent up to his room, from thirteen to twenty-eight drinks of whiskey per diem. The patient, when I was called in, was sitting on the edge of the bed and violently trembling—the characteristic alcoholic tremor—and requested me to remove several objectionable persons whom he fancied were crawling over the walls and attempting to get over the transom. That was at 1.30 at night.

I administered, as Dr. Livingston suggests, in the left deltoid hypodermatically, 30 minims of a solution of ergot. I introduced it slowly, and by the time the administration had ceased the tremor had decidedly diminished. I stayed with the patient for the next half hour, but did not administer another dose at that time, as he said he felt drowsy. He told me he had not slept for at least three nights previously. I left him in charge of a trained nurse, and saw him again next morning in the neighborhood of 9.30. He had no further remarks to make about the presence of the objectionable persons crawling up the walls, with the exception that at 5 A.M. he had a slight suggestion of that symptom. He slept for three hours following the first administration, and his further recovery was practically uneventful.

The action on the heart in these alcoholic cases, so far as the series of cases which I have observed

is concerned, is somewhat irregular, but the majority of them, it seems to me, on careful watching, show that at first there is an increase in the rapidity of the pulse over the rate which has been present previous to the administration of the ergot, but this is followed within a short time (15 or 20 minutes) by a marked *decrease* in the rapidity, and, if the pulse has been irregular, previously, a regulation of the rhythm. At the same time with this decrease in rapidity and regulation of the rhythm, occurs a perceptible softening of the pulse. Diminution in tension has in the majority of cases been present, although there has been some irregularity relative thereto in different cases according to the severity of the alcoholism.

Another case, which may be of interest to state to you, is one of acute hysteria, to which I was called to one of the Broadway theatres to see a chorus girl who had been taken with a violent attack of hysteria on the stage, was screaming and throwing herself about, and disturbing the performance. The picture which she presented was a typical one of an acute hysterical condition with screaming, and clonic contractions of the muscles throughout the body. Having the ergot in my pocket, I immediately gave a hypodermatic administration of the drug, giving slowly, according to Dr. Livingston's directions.

Before the injection was finished the cries had entirely ceased, and by the time I removed the needle every muscle fell lax, and she said, "I am so relieved." I stayed with her for twenty or thirty minutes, when she began to have a slight return of the clonic contraction of the muscles. I then gave her, for her protection and my own, a second injection. She was then perfectly restored from her attack.

I asked her how long these attacks usually lasted, if she had them before, and if they lasted any length of time, and she said, "Yes; from twelve to fourteen hours."

I have had opportunity to use the drug in the case of a chronic neurotic patient who was passing through the menopause, and in whom sleeplessness was a prominent symptom—sleeplessness which apparently could not be overcome. On the prescription of a physician she had been taking from 20 to 30 grains of sulphonal and 5v of a 10 per cent. solution of dormiol each night, with the result of getting from 1½ to 2 hours' sleep. I gave her one injection of ergot m. xxx., about three in the afternoon, and she told me over the telephone next morning she had slept for six consecutive hours—a thing she had not done for

some months before. Unfortunately this case moved out of town, and I was unable to observe it further.

DR. F. H. WIGGIN: Some time ago, following Dr. Livingston's paper, which he read at Chautauqua, and which I was fortunate enough to hear, I had occasion to experiment with ergot along the line he indicated in that paper, and especially in intestinal paresis and in peritonitis, and I found that its use bore out the statement which he made. In one case I am certain that I succeeded in saving the patient's life, which otherwise I would have been unable to have done.

I have also used ergot in cases of delirium tremens in connection with surgical injuries, and I believe the statements of Dr. Livingston and Dr. Lombard to be correct, that the nervous symptoms can be controlled very promptly. In the first case I used it the patient was in a desperate condition, seeing all kinds of things, and I immediately gave him 50 minims of Squibbs Fluid Extract of Ergot, being the only preparation which was available, and in thirty minutes he had become reasonably quiet, the tremor and the seeing of objects had disappeared, and in the course of perhaps 45 minutes from the first injection, we gave him another of 25 minims, and in an hour he was asleep. The next morning he apparently entirely recovered.

I have also had occasion during the last six months to use ergot in cases of patients suffering from violent abdominal colic, and I have had no difficulty in giving relief there. I presume the explanation of that was, as Dr. Livingston stated, the change of a spasmodic contraction into a regular one.

Also I have had occasion to use ergot in cases of neuritis; in one case with such marked relief of the pain that the patient was very much opposed to continuing the use of the drug, because she thought since she got so much relief from it, that it must be injurious.

I have had occasion during the last few months to use it in surgical shock and with great success. In one case a patient 65 years of age came into the hospital with gangrene of the foot and leg. He was brought in just before I arrived there. My attention was called to him at once, but his general condition was so bad it did not seem possible to perform an operation then. As I had other work to do in the operating room, I simply gave him 50 minims of Squibbs Fluid Extract. At that time the pulse at the wrist was almost imperceptible. At the end of about two hours I returned to see him, but before this I advised a for-

malin wet dressing being put about the foot and leg, thinking possibly we might be able to operate. About an hour after this was done the orderly came to the operating room and said the man was complaining of pain from this dressing and wanted it removed. I told the orderly not to disturb the dressing, but to give the man another hypodermatic injection of ergot. A quarter of an hour afterwards he reported the man as comfortable.

I visited the patient later and thought his condition would justify an operation. This was done and the man recovered.

I have used ergot satisfactorily before operation for the purpose of lessening the shock of operation and of getting rid of the few unpleasant symptoms following the use of the minimum amount of anesthetic used. Also in a number of cases where this had not been done prior to the operation, where the patient came out of the anesthetic with a good deal of excitement, complaining bitterly of pain from the wound, we have given one or two injections of ergot with immediate relief of pain and vomiting and nervous excitement. So I think we can fully corroborate the statement the Doctor has made in his paper along these lines. I believe he has made a very fortunate discovery and of great practical value to us all.

DR. A. LAMBERT: The first case I tried ergot in was one of angina pectoris. Dr. Livingston recommended it in his paper, and I have some in my pocket in case of need. I was called to this patient suddenly. I tried everything that I had ever tried before, glonoin, strychnine and amyl nitrite. The man was dying under my eyes, but I was afraid for some time to use the ergot. Finally in desperation I gave him an injection of ergot, and to my surprise his pinched face and blue color gradually left him, and in about ten minutes the man was perfectly comfortable and remained so for a good many hours. All through the remainder of his life it controlled his attacks of angina. He died finally of an asthenic condition of the heart, which gradually failed. The ergot controlled the angina.

Since then I have had two other cases in Bellevue of angina, and it has not failed to control their attacks.

In December I went on alcoholic duty, and in the male wards, where I used the ergot mainly (I had some 768 cases of alcoholism in this ward alone), most of them being of over two weeks' duration. The condition that has always distressed me with these patients is the wet brain.

Heretofore I have congratulated myself when I have been able to save three out of 100. They almost invariably die. This winter I saved 7 out of 10. It is remarkable sometimes to see the serious meningitis gradually develop, and then under the effects of ergot to see these patients sometimes within a few hours wake up, become conscious, sensible and rational and demand food, and any drug which will do that to a Bellevue alcoholic commands my respect.

Again, I have tried it a great deal in pneumonia. In edema of the lungs it has a very extraordinary effect. With dry cups in an acute edema from pneumonia or from other causes, it certainly will do more than any other drug I have tried. I have used it in five patients with alcoholic pneumonia with edema this winter, which developed very rapidly, and so far five have recovered.

There was another thing in pneumonia which struck me the other day in a two-year-old baby, who had an intense abdominal distention and was gradually suffocating. I tried the ergot five minims hypodermatically and repeated it in an hour, and then again two hours later, and it relieved that distention. The baby after the first dose began to pass gas, and after a few hours the abdomen was normal and the distressing distention had disappeared.

As an equalizer of the circulation I have used it freely and with good results, and even in depression following grippe. In neurasthenics and in nervous symptoms, I have not hesitated to use it, and I have again had most beneficial results.

In a case of hemophilia in a patient who persistently bled profusely from his nose and gums even from a slight scratch, I found that finally when we gave ergot these hemorrhages ceased quicker than by any other method. That has been partially my experience.

There is another thing that has struck me. One day I had two patients brought into the hospital. They both were alcoholic. One was at the end of a month's drunk, with the lungs congested, full of râles, his temperature 105 and he was thoroughly debilitated. His leucocytes were 24,000, showing distinct inflammation. I ordered the House Staff to give him absolutely nothing but ergot. I forbade them giving anything else until I came the next day. I ordered 30 minims every two hours. The tremor next day had ceased, the congestion had gone from the lungs, there was a small patch of broncho-vesicular breathing which cleared up in 48 hours, his leucocytes had fallen to 10,000, and he recovered.

Another patient was a female alcoholic, who

had marked dullness over the entire right lung, so much so I was afraid she was getting up a pneumonia of that entire lung. She had a temperature of 105 with a leucocytosis of 24,000. After giving the ergot continuously throughout the night, the next day the leucocytosis and everything were normal. The inflammation had entirely disappeared.

DR. A. T. LIVINGSTON: I have been very much gratified since the reading of the first paper at Chautauqua at the promptness with which a few gentlemen made application of the principles laid down, and I am very much more gratified recently to find that so many more are using ergot. I feel that if they continue to do so, and use a proper solution, there can be but one result—their satisfaction and the patient's benefit.

Dr. Lombard referred in his remarks to the increased rapidity of the pulse immediately following the beginning of the hypodermatic injection. This increase of the heart's action I can hardly see a reason for other than the state of apprehension of the patient of having a hypodermatic needle thrust into the skin, or the nervous irritation from the hurt of the introduction of the needle and the fluid. It does not seem to me that the direct effect of ergot could be the cause of the acceleration.

The Doctor spoke also of a decreased tension. Now this matter of tension, or blood pressure—elevation or depression—is a secondary effect of ergot—it is not a direct effect. If the high arterial tension, as in the case related of the old man, is from cerebral congestion, for instance, irritating the heart center, and so irritating it that it is bounding like a sledge-hammer, if that congestion is relieved, this bounding diminishes until the heart is acting normally, as it did in that case. Many times I have applied it in cases where the heart action was so weak that the pulse was scarcely perceptible, and sometimes not perceptible at all, and within a few minutes a distinct pulse appeared. The action there was quite different—the direct action was the same upon the unstripped fibre and dilated blood vessels, but in another sense while the action of ergot is the same, the final effect differs according to the character of the case upon which we use it. The matter of blood pressure is merely an incident. By raising it in one instance, lowering it in another, it simply approximates the normal for that individual. That is the uniform final result. I do not know how many surgeons may be present, but I have purposely said something on surgery. I have felt for many years that the introduction of ergot to

the medical profession, when the time came, would be, as far as the general practitioner is concerned, comparatively easy—after one or two sheep had started, the rest would follow; but from the surgeon I did not expect so prompt an acceptance of the theory of the importance of the use of this medication in his sphere, a medication that has been in such derision and contempt, and in fact under abuse so often as ergot has been, and I, therefore, have been specially desirous that surgeons should be led to experiment upon the more important cases, and I hope they will do so, and have not the slightest doubt as to the results of their proper experimentation in that direction.

THE BROOKLYN GYNECOLOGICAL SOCIETY.

FREDERIC J. SHOOP, M.D., Editor.

STATED MEETING, APRIL 3, 1903.

The President, FRANK BALDWIN, M.D., in the Chair.

Presentation of Specimens and Report of Cases:

TWO OVARIAN DERMOID CYSTS.

OVARIAN CYSTS WITH TWISTED PEDICLE.

Dr. L. GRANT BALDWIN: These ovarian cysts are common and uninteresting enough, but present some points in diagnosis that are of special interest, and it is mainly for that reason that I present them.

Two of them are dermoid cysts. The larger one, which contains quite a lot of hair, was completely filled to tension with a thick cheesy material, flaky, like curds of milk, instead of being smooth and fatty, as in the ordinary dermoid cyst.

The point in diagnosis in this case was, that after repeated and most careful examinations I took it to be a fibroid of the uterus. The history was of dysmenorrhea, and profuse flowing. The tumor was located very high up in the abdomen in front of, and resting on, the uterus, which was back of it. There was no dysuria. I made an examination on three different occasions and each time I was convinced that it was a fibroid, from its position, hardness and lack of fluctuation, and I was not aware of my error in diagnosis until I opened the abdomen. I was very glad to find it so, because I feared on account of its size that I would not be able to remove the tumor without removing the uterus.

That is the third time within a comparatively recent period that I have mistaken a dermoid cyst for a fibroid. One was a case I spoke of at the last meeting, where there was a dermoid of each ovary.

Case II.—This other smaller dermoid we removed 10 days ago from a woman twenty-nine years old, single, who had had a history of pain in her right side for three years. This pain was very severe and aggravated during the last 10 days prior to operation. She had a great deal of dysuria, and if the bladder got the least bit over-distended, it was only with the greatest difficulty she could get the urine started.

This tumor was located exactly as the other one was, but I was able to outline it and separate it from the uterus, and therefore, able to make a diagnosis of a dermoid cyst on account of its high position in the abdomen. Dermoid cysts being of lighter specific gravity are apt to take a higher position in the abdomen than ordinary cysts.

I made a diagnosis of twisted pedicle on account of the severe pain, which came on rather suddenly, and because I was not able to account for it in any other way. I was gratified on opening the abdomen to find my diagnosis correct. The cyst had begun to undergo necrosis from lack of nourishment. On cutting the pedicle it immediately untwisted, so it does not show on this specimen.

Case III.—The third one—a large cyst not a dermoid—I removed from an Italian, forty-five years old, multipara, who had been sick for five weeks. Up to that time she declared she had been perfectly well. She had amenorrhea almost since the beginning of her pain four or five weeks prior to her symptoms, and with the pain came a little hemorrhage. She spoke no English, and the history I got was from another Italian woman, who spoke very poor English, so the diagnosis in this case was uncertain.

The tumor was easily felt and on account of its rigidity and fixation, the history of amenorrhea with a little bleeding, the diagnosis in my mind was more of ectopic pregnancy than it was of a cyst, although one of my assistants suggested that the symptoms were very much like those in the other case, and that it was probably a twisted pedicle. Here is all that is left of the pedicle, just the least little bit, it almost twisted off. This is exactly the color it was when removed. There are adhesions throughout every surface except just a little space down by the pedicle, and

as you see, if you look inside, there has been a hemorrhage.

Discussion.

Dr. W. B. CHASE: These two very interesting cases presented difficulties of diagnosis which were insuperable. In the first case I do not see how any one could reach any other conclusion. It goes to show that in our supposed ability to diagnosticate cysts, we are sometimes very much mistaken.

The relatively high position of dermoid cysts in the peritoneal cavity, which the Doctor has mentioned, if not fastened by adhesions, I regard as a very valuable point in diagnosis. The patient can be congratulated that she was not operated on later, as delay would have been disastrous.

Dr. F. J. SHOOP: When a cyst is filled very tight it gives that hard sensation of fibroid to the touch in examination. In a case that I operated on recently I told the patient I was not sure whether it was a fibroid, or whether it was a cystic condition of the ovary. It was immovable and felt just as hard as any fibroid I ever touched, but from the fact that it was tender I thought the chances were more in favor of its being the ovary. There proved to be two ovarian cysts, four inches and two and a half inches in diameter, the smaller not discovered until opening the abdomen as it lay posteriorly.

Dr. L. G. BALDWIN: In regard to Dr. Shoop's remarks, it certainly will often happen that you will not be certain, it will be in your mind that it is something else, but in this case it never occurred to me that it was possible that that tumor was anything but a fibroid from its location. I diagnosed it as a fibroid.

PRESENTATION OF SPECIMEN AND REPORT OF CASE: PRESUMED PERFORATION OF UTERUS WITH DOUCHE NOZZLE BY MIDWIFE AFTER CRIMINAL ABORTION, WITH REPER- FORATION DURING CURETTAGE THREE WEEKS SUBSE- QUENTLY.

Dr. J. O. POLAK: The woman from whom this specimen was taken was pregnant two months, and with the natural desire of the American woman to get rid of things, she went to an obliging midwife, who apparently introduced something inside the uterus on several occasions. The woman said a long syringe was used on the last occasion that the midwife introduced something into the uterus, and that was followed by

an intra-uterine douche of carbolic acid solution. The fluid did not flow back, and the physician who was called in says that an immense tumor developed on the left side, which caused the patient a great deal of pain, and remained there, so that it was appreciable to this physician for a period of about 36 or 48 hours, when it got smaller and gradually disappeared.

Her bleeding continued, but while she was running some temperature and complaining of some abdominal pain, her condition was not precarious at any time until about two weeks ago. The bleeding continued for a period of three weeks (it being about three weeks from the supposed induction made by this midwife), so the Doctor, with the help of another physician, anesthetized her. He introduced a curette into the uterus, and the curette went through and disappeared up to the handle. He very cautiously withdrew his curette, packed the uterus with iodoform gauze, and sent the woman into the hospital. An ice bag was put over the abdomen. She seemed to be suffering no particular ill effects from the introduction of the curette into the peritoneal cavity for the first 24 hours. Then we waited another 24 hours and the temperature went up to 103°. She was anesthetized, the uterus explored and this rent found.

Before the Doctor curetted her he had given instructions to give the patient carbolic douches. The woman in charge of the patient had used carbolic as she thought wise, filled the bag and poured the carbolic in. Consequently as the bag emptied the carbolic came out first and the water last, so that when she entered the hospital there was a sloughing surface covering the entire vagina from the carbolic acid—the slough also extended over most of the perineum and ran well down around the anus. A posterior incision was made, and the vagina was thoroughly cleaned, as well as could be, with water and bichloride, and finally peroxide.

The uterus was freely movable in all directions, not an adhesion anywhere to be found.

I did not see any reason from the condition of the uterus for removing it, so I isolated it by filling the cul-de-sac with iodoform gauze, and put the patient back to bed. Her temperature went from 103° to 105°, at which time we decided we would have the blood examined. Streptococci were found in great numbers in the blood. A 1 to 5,000 formalin injection was given, which sent the temperature to 108°, and the patient died four hours after the posterior section. An autopsy was made and I show you

here the perforation the Doctor supposed he made and no evidence of peritonitis. Examination of blood after formalin injection showed no change in any respect.

DR. C. JEWETT: Perforation doubtless often occurs with no marked ill effects in a clean uterus. The case is very different in a septic one. In the case presented the trouble must have originated in the uterus. Further examination may find the primary focus. Frequently I have observed grave results from a focus of infection that was very small and difficult to locate.

I would like to ask if the principal seat of infection may not have been the pelvic veins. The temperature lends color to that suspicion. I would suggest again that a more thorough examination be made of the uterus. It occurs to me that the most likely seat of infection was primarily one of the uterine sinuses, the infection going out through the blood current. Infection starting from the vagina would be most apt to spread by the lymphatics and in that case the peritoneum could scarcely escape.

DR. L. G. BALDWIN: The avenue of infection was probably through the endometrium. It would seem the thing to have done with that uterus was to cut it open and submit the discharges or the mucous membrane to a bacteriological examination.

DR. W. B. CHASE: I am inclined to the belief from the history of this case, that the infection took place from the vaginal surface and not from the endometrium.

DR. J. C. MACVITT: From the history it would appear that the woman was suffering from general traumatic sepsis produced by the induction, or the attempt at induction of abortion, by the midwife, when the physician was called in to see her.

Now it is possible to perforate a uterus of that kind and yet not set up a general peritonitis. In many of these cases of general septicemia, post-mortem will show apparently healthy peritoneum, except that portion surrounding the uterus and the adnexa.

DR. F. BALDWIN: I presented to this Society three years ago a uterus that was ruptured on the posterior surface, the rupture having occurred during a menstrual period. There was a stenosis at the cervix and the woman always had violent pains at her periods just like labor pains, but this time the uterus ruptured and the woman died from shock and hemorrhage. I never heard of another case of that kind during my entire professional career.

PAPER: SOME INDICATIONS FOR INDUCING ABORTION AND PREMATURE LABOR.

BY DR. W. P. POOL.

Discussion.

DR. C. JEWETT: Circumstances may be such in a given case of pelvic contraction that induced abortion in the early months may be justified in preference to an incisive operation at term. But the excuse for this is rare now that the Cesarean operation under favorable conditions is attended with so insignificant a mortality. Again the ethical question should have some weight. Yet that receives little recognition.

The field of induced labor has grown very small for the reason that its high fetal mortality has not been materially diminished by modern methods while a properly conducted Cesarean section today saves nearly all of both mothers and children.

Fifty per cent. is not a large estimate of the infant mortality in induced labor if we include deaths soon after birth due to prematurity.

With reference to nephritis, I would not subscribe fully to the Doctor's rule that the uterus should be emptied in all cases in which a convulsion has occurred. In the presence of grave nervous symptoms after viability I would agree; but before that period I would not feel impelled always to interfere because of a convulsion. Only recently I saw in consultation a woman who had had two or three convulsions about the seventh month. The case was left entirely to medical measures. She is now doing well and promises to go to term.

The prognosis in diabetes differs much in different cases. Some diabetic patients stand operation or labor well. Here the indication would be governed largely by the results of examination for acetone, diacetic and oxybutyric acids. The mere presence of sugar of course means little. Yet it should not be forgotten that the danger in diabetes increases as pregnancy advances. The diabetes, too, may be complicated with disease of the kidneys.

In hyperemesis much can be done in most cases, by rest in bed and by minute attention to every detail, to tide the patient over the critical period. When the trouble does not yield to the usual measures faithfully carried out the condition is a treacherous one. The heart grows weak insidiously and the woman may die abruptly. My belief is that it is better to operate too soon rather than too late.

In cardiac disease multiple valvular lesions are credited with the highest death rate. Mitral stenosis is nearly as fatal, the mortality being estimated by one writer at from 46 to 64 per cent. Mitral or aortic incompetence is little less dangerous. Yet it is mainly the condition of the heart muscle which determines the prognosis. The presence of tuberculosis or nephritis adds materially to the danger in heart diseases.

DR. W. B. CHASE: I am not prepared to take the extreme position of the writer in some of his recommendations. In looking back over my own experience I find some cases which years ago for certain conditions I suggested should be terminated promptly whether in early or later pregnancy. In later years I have refrained in similar cases from so doing, and I have no reason to regret it.

Regarding the seriousness of renal complications during the last months of pregnancy, it is gratifying to know the resources Nature has, and how readily she sometimes responds to our aid in tiding a woman over what seems a dangerous condition. I recall a case which came under my observation, four or five years ago, which gave me a good deal of solicitude—a woman forty years old who was desirous of having a child. I was called suddenly to remove a dead fetus at five months. She became pregnant four years later. Six weeks prior to delivery, her urine, which had been carefully watched during the whole period of pregnancy, was found to contain casts, and the amount of urea excreted was less than 150 grains per day, and during the last six weeks of pregnancy it rarely went above that amount. The symptoms of toxemia were well marked. The patient was dry cupped thoroughly every day and took large quantities of water to drink. By this persistent treatment I succeeded in carrying her to term with a successful delivery and living child. Had I resorted to premature labor at the seven and one-half or eighth month, I am very doubtful whether the results for the mother and child would have been as successful as they were.

While I have often resorted to the expedient of emptying the uterus in the case of eclamptic convulsions, I am confident it is not always necessary. I recall a case, which impressed itself on my mind, happening 15 years ago, when I was called in consultation to see a patient who had just been in a violent convulsion. On examining the patient I found she had scarlet fever. The urine was drawn, subjected to heat, and coagulation was so complete that it

would not leave the test tube when it was inverted. The woman was given chloroform and Croton oil. The bowels moved freely, the kidneys resumed their function in two days, and she went on in spite of her scarlet fever to term and was delivered of a healthy child.

If there is serious organic disease of the kidneys and it is discovered in the early months of pregnancy, it may be our duty to terminate pregnancy, because the possibility of the disease going on to a condition which places the patient in jeopardy and causes death is so great that we are hardly prepared to take the risk. On the other hand, as I remarked before, the power of Nature and proper therapeutics will do so much towards relieving these conditions, that in certain cases we are justified in temporizing.

DR. J. C. MACEVITT: This is a subject of very great importance, and one which goes beyond the province of medicine and brings us into the realms of theology.

It has been the doctrine of the Catholic Church that an unborn child has moral rights (the moral right of existence), and hence it teaches and inculcates, as strongly as it possibly can, that an abortion can under no consideration be produced. I state this emphatically and unqualifiedly. It does not teach against the production of premature labor. For centuries, the Fathers of the Church have advocated, when conditions existed in which the child could not be born at term, that Cesarean section could and should be resorted to. I think the Church deserves commendation for that particular doctrine, because for a long time it was taught by the leading obstetricians in conditions of this kind, deformed pelves, to resort to craniotomy. Now we all know that later developments have shown as good results to the mother, and better for the child in following the teaching of the Church.

I will say this: that medical gentlemen when called upon to attend Catholic women, or women professing the Catholic faith, should describe the condition existing to the husband or to the relatives, and they, in doubt, will consult their spiritual adviser. The husband of the woman, of course, has a right to resist any attempt of the kind, even should she be advised to permit it by a medical attendant.

But coming now to the cases in which the reader of the paper advises the production of an abortion, there is one point I am not clear about. I do not understand at what period of time the Doctor suggests these abortions. Catholic tenets are that abortion should not be produced at any

time, but in relation to terminating labor or the induction of premature labor, the Church holds that that is permissible when the child is viable. Well now, there are few of the causes given by Dr. Pool in his paper which can not by remedial measures be carried over to a time when the child will be viable, say the fifth month. Of course, in a contracted pelvis, this is beyond dispute. As a rule, cases of nephritis in pregnancy do not come on until after about the third month. At least you do not feel very much alarmed at its presence before that period. We will find albuminuria, it is true, but albuminuria is not sufficient to cause alarm. When you find epithelial, granular or blood casts, they are, of course, signals of danger, but with treatment, I believe that such a case can be carried over until such a time that the viability of the child is assured.

Eclampsia has no particular bearing upon the case from the point of view of which I am speaking, because it comes on in the later months of pregnancy as a general rule. The vomiting of pregnancy will hold good regarding therapeutical measures. Organic disease of the heart as well.

But, taking the view of Dr. Pool in these cases, you must admit that there is danger in the production of abortion. It is an important matter, one that requires a great deal of study and thought before resorting to so questionable a measure.

It has pleased me very much to hear Dr. Jewett, who is a teacher on this particular subject, take so conservative a view. His views, I believe, will be maintained by modern scientific teachers.

DR. R. L. DICKINSON: Many of these cases can handily be put into two classes: The cases that come to us late in pregnancy, and those we encounter early in pregnancy. The early cases of a woman pregnant for the first time with a very high degree of contraction of the pelvis, say two and three-quarters to two and a half inches conjugate, a woman always delicate, rachitic, with low resistance, will ordinarily elect abortion as against Cesarean section. I think we all would elect it in our own families.

A woman with a toxemia in these early months, which does not yield to the very thoroughgoing treatment which we now adopt, is usually in grave danger and should have her uterus emptied. A woman in the later stages, particularly a multipara, is in a very different class. The patient is put to bed in charge of a trained nurse on exclusive milk diet and the sweat box, a perfect substitute for the Turkish bath. I can not conceive of a mental attitude that would see a mother almost

inevitably doomed to death in the early months and not interrupt pregnancy.

At the Kings County Hospital there was a considerable series of albuminuric women with mild toxemias, slight headache, very slight pallor, vision moderately dimmed, some nausea. Dr. Pomeroy and I took such cases and treated them on the expectant plan, put them to bed, sweated them, put them on milk diet, let them up as urea increased and the total activity of the kidney improved and carried them along over to full term, or to that last two or three weeks of pregnancy when induced labor is successful and safe. There is a very sharp dividing line about that time.

The eclamptic whose convulsions can be controlled by the combination of chloral and morphia, particularly the primipara with rigid cervixes, with whom accouchement forcé is one of the gravest possible operations, can be put off safely; but when the patient is a multipara with an easily dilatable cervix, with a fairly roomy pelvis, one need not hesitate to operate at once. With Dr. Polak I have come to a more expectant treatment of these cases, not hesitating to deliver promptly where the convulsions are beyond control, but being willing to wait more often than I have been in the early years.

As to the vomiting of pregnancy, again one cannot be too thorough in putting the patient to bed, with forced feeding of peptonized foods, the care of a trained nurse, all the details carried out elaborately, including oxygen and the open-air treatment. These things are of very great importance. They are cases in grave danger of their lives, and one must not hesitate to empty the uterus. We have seen in hospital service cases in the last stages of exhaustion, where emptying the uterus occurred but had been delayed too long.

DR. G. McNAUGHTON: I wish to thoroughly endorse what Dr. MacEvitt has said. I believe everybody and every denomination have an entire right to make use of their teaching and their understanding of this subject as they see fit, and I believe that matter should be placed before the patient and the patient's husband. Nevertheless I should advise cases where it seems emptying the uterus is indicated, without the slightest hesitancy, even in the families of my Catholic patients, but I should give them the opportunity of selection.

There is one class of cases Dr. Pool has not included in his paper, and that is pregnancy occurring in women who have gastric ulcer. I

have seen two deaths under such circumstances from perforation, and I believe abortion should always be done in these cases. I have had the satisfaction of advising it in one case since that experience.

I should like to have Dr. Pool give more information about the induction of labor in tubercular patients. It seems to me if that were recommended and accepted, it would allow of the induction of premature labor promiscuously, because we so often find some signs of tuberculosis in many apparently healthy women. I think he ought to specify what stage and under what circumstances that should be done.

Speaking of tuberculosis in infants, I have a patient who has had four children. The first child died at the age of five or six months evidently from tubercular meningitis. The next child that died, I think, was eighteen days old. I made an autopsy and his lungs were riddled with cavities. Neither parent is tubercular. The mother has psoriasis. Further than that I know of no specific infection on the part of either. Since that time she has had two children that are perfectly well, the youngest being a year old.

DR. A. M. JUDD: I never yet have emptied a uterus for any reason whatsoever, with the exception of once, before a child has reached a period of viability. I follow the expectant plan of treatment. On two occasions I have brought on labor at the beginning of the eighth month, because under dietetic and therapeutic measures the patient's condition did not improve.

I think Dr. Pool stated in his paper that as soon as the uterus was emptied convulsions ceased. I have seen two cases where the convulsions continued after the emptying of the uterus. One of these patients died.

I do not believe in the production of abortion or premature labor in a woman who has consumption. The mother has no chance of her life, and I think we ought to give the child a chance for its life.

DR. FRANK BALDWIN: Dr. Pool did not mention in his paper the necessity of producing abortion in cases where insanity has occurred either immediately after or during the period of pregnancy. I remember about two years ago being called to see a woman 10 weeks pregnant. During the latter three or four months following her first pregnancy (this was her third) she had become insane. During her second pregnancy it came somewhat earlier and remained considerably later. She was sent to a resort for the insane on Long Island.

This third time she showed signs of insanity considerably earlier than she had before. I called an alienist of this city in consultation, and he told me his opinion was that woman's uterus should be emptied at once, and I told the husband what our impressions were regarding his wife. He told me he would have to consult his spiritual adviser. The next morning a young clergyman came to my office and said he would give no permission in the case, because he was only an assistant in the Church and the Rector and Bishop were absent in Europe, and it would be six weeks before he could get it from them. In the meantime the woman grew worse and was sent to an asylum and is there since. Whether I would have saved the woman from insanity if I emptied the uterus, I do not know, but I felt justified in making the attempt if I had obtained the permission. The woman, as far as I know, was delivered at full term.

DR. WM. P. POOL: I perfectly agree with those who have spoken of the limited field that induction of labor has in contraction of the pelvis, Cesarean section being possible with so great safety at the present time. But cases occur where the Cesarean operation is objected to, and which limit us to the selection of symphysiotomy or premature labor. Although the latter procedure does certainly diminish the chances of the child, symphysiotomy is attended with so much danger to the mother, both immediate and remote, that in her interest, which should be paramount, I would prefer to expose the child to the risk of prematurity rather than perform the other operation.

Dr. Chase has spoken of a case in which the daily average of urea excreted was very low. I believe that this is by no means an infallible guide. The findings of the test tube and the microscope are, of course, of great value in prognosis, but they sometimes are not accompanied by corresponding symptoms in the patient, and hence the necessity of clinical observation as well. In a case which I have recently seen, the daily amount of urea was as low as 125 grains for a time, and during the latter months of pregnancy did not average more than 150 grains, the urine being examined several times a week. The quantity of urine was large, amounting to 80 or 90 ounces a day; the specific gravity was low. No symptoms of toxemia occurred. Rapid delivery in cases of eclampsia has, in my experience, been pretty successful. In the majority of cases where an eclamptic seizure has occurred it will be found that labor is already under way,

and that the cervix is partially dilated and soft. It is not a difficult or dangerous matter to assist nature in the delivery under these conditions. In a series of 18 cases I have been able to arrest convulsions immediately in all but one, by a rapid delivery of the fetus. There were two deaths, one from hemorrhage and one from continued convulsions. The other 16 recovered. Chloroform used in such cases meets the indication of lowering blood pressure, as also does the hemorrhage which we bring about in rapid delivery. The use of oxygen I have not tried.

I stated that when tuberculosis exists in an active form, as evidenced by progressive physical signs, and the presence of tubercle bacilli found by the microscope in the secretions, I would suggest abortion. I should consider it necessary to confirm the diagnosis by both these means. A patient with incipient tuberculosis does have a chance, if not of cure, at least that the disease may be held in abeyance, and in preventing or terminating pregnancy, we are removing a condition which tends to prevent recovery. There is, of course, much to be said on the other side of this question, and I hope for a fuller discussion of it.

I do not pretend to reconcile the theological and scientific views on the subject of abortion. The doctor cannot be too particular in respecting the religious belief of his patient in all cases. Because of the religious objection among some, in this matter of terminating pregnancy before it is possible to deliver a living and viable child, we meet with a great deal of opposition. When this position is taken one simply has to yield, and in all cases where theological and medical views cross, the doctor can only state the case as he sees it, and leave the decision to the family.

Under no circumstances should a physician induce abortion or premature labor without consultation with a man competent to decide, or without a perfect understanding with the patient and her family. It is certainly a question in which one ought not to assume an undivided responsibility.

Smallpox Hospital Burned in Orange, N. J.—Fire on July 2 destroyed the main structure of the group of buildings, erected at Heywood and Mosswood avenues in Orange at the time of the smallpox outbreak about two years ago and used as an isolation hospital, entailing a loss of \$2,000. It was with difficulty that the firemen prevented the destruction of the other buildings, as there are no hydrants nearby and the fight had to be made with the chemical engine.

BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, MARCH 5, 1903.

The President, W. M. FRIEND, M.D., in the Chair.

RODENT ULCER OF THE FACE.

DR. C. F. BUCKLEY presented the case of a man seventy-three years of age. In his family and previous personal history there was nothing of a malignant nature and his general health had always been excellent.

The commencement of his present trouble dated back nearly 37 years ago, when there appeared in the left side of his head just posterior to the frontal eminence a minute red spot, which remained quiescent apparently for ten years, but at the end of this time the skin overlying it took on a scaly appearance. The growth of this skin lesion was so slow, that it was eighteen years before it had reached the size of a pea. He then consulted a physician who pronounced it eczema, and treating him for that failed to benefit him in the least. In 1889, 23 years after its first appearance, it had reached the size of a hickory nut and broke down. Then for the first time operation was resorted to, the actual cautery being employed. The procedure of cauterization was repeated six months and again one year later, the only effect being to stimulate the neoplasm to more rapid growth, which now began to extend downward. In the fall of 1892 it had reached the size of the patient's thumb, and the growth was excised and the denuded area skin-grafted. For a time this seemed to have checked the process, but four months later it had involved the eye to such an extent that it was necessary to enucleate it.

Between 1889 and 1899 he was operated twenty times by knife and cautery, all without permanent benefit. In 1899 still another course was resorted to, viz., the use of Coley's fluid. This was injected six times, once every two days, the first time on the margin of the ulcer, the remaining five times it was injected into the buttock. The fifth injection was followed by a rise of temperature to 108° F., dizziness and loss of consciousness. By this method the local condition was not at all benefited.

In the next year, 1900, he had twelve treatments with the X-ray at intervals of one week, which benefited him, he says, more than all other measures combined, but on account of the expense, he was obliged to discontinue them.

In February, 1901, he came to the Methodist Episcopal Hospital Dispensary, where the speaker first saw him. Then the only treatment he received was cleansing of the ulcer and attempted diminishing of the pain. For a time a saturated aqueous solution of chloretone gave him some relief, but it was only a little while before he had to resort to morphine again. During his dispensary treatment the ulcer grew slowly but steadily, and last September he began almost daily X-ray treatment at the hands of Dr. Bruce, and is still receiving them. Under this treatment, the depth of the cavity is diminishing; the amount of discharge, extreme sensitiveness and pain have become less and he feels physically stronger.

During all these years he has lost only about fifteen pounds in weight. His appetite continues to be good, and he has been able to attend to his business practically all the time. Last summer he noticed some weakness, which disappeared under the X-ray treatment. His only medication has been a general tonic.

The points of importance emphasized in this case are:

1. Necessity of early and correct diagnosis of what are apparently benign lesions of the skin.
2. The fact that caustics, whether chemical or thermal, instead of curing malignant growths, tend rather to stimulate them to more rapid development.
3. The beneficial results to be obtained by the X-ray in cases of this nature.

FIBROMYOMA OF UTERUS.

DR. GEO. WACKERHAGEN reported the case of a woman, aged fifty, who, at forty-five years began to suffer from severe head- and backache. During her forty-seventh year she noticed a tumor in her abdomen; at this time she suffered from intense backache; her periods became irregular, sometimes not appearing for two or three months and then lasting a week at a time, the flow being very profuse—so much so that she was in collapse several times. This condition lasted for two years when the metrorrhagia occurred at more frequent intervals. She first consulted him in October, 1901. The neoplasm had grown to a considerable size by this time. He advised operation which was declined. She again consulted him during March, 1902. At this time the hemorrhages were exhausting. He tried galvanism at the patient's urgent request for some time, but with no appreciable effect; and finally persuaded her to submit to extirpation. He operated May 1st, 1902.

The usual median incision was made revealing an immense uterine fibroma firmly bound down by dense adhesions. The primary incision was about five inches. This had to be enlarged to eight inches before the tumor could be delivered, which was difficult and tedious owing to the mass of adhesions. It was adherent to the pelvic wall on either side and the fundus of the bladder by thick bands; the growth had crowded everything out of the pelvis. After the tumor and uterus were removed, there remained large surfaces denuded of peritoneum, on either side, which required a large number of sutures. The appendix presented and was removed. The patient made a rapid and uninterrupted recovery.

GANGRENOUS APPENDICITIS.

DR. GEO. WACKERHAGEN reported the case of H. B., age fifteen years. On the morning of April 23, 1902, the patient complained of not feeling well, but ate his breakfast and went to school. At noon he was taken with severe abdominal pain; declined to eat. Steady pain continued but not so severe. That night he was very restless. Awoke at 3 A.M. with increased pain in abdomen. A neighboring physician was called. Temperature was then 100° F. Ice-bag was applied. The reporter saw the patient 8 A.M. on the 24th. Temperature was normal. At 5 P.M., temperature was 101° F. There were nausea, vomiting and severe abdominal pain. The following morning, temperature was 100.8° F. Application of ice-bag continued. Pain was not so severe, but abdomen very sensitive to pressure.

Operation at 2 P.M. On opening the peritoneum, cloudy serum with flakes of organized lymph escaped; the appendix was found with a perforation in the central portion. Distal end was gangrenous. There was no apparent attempt at walling off. Flat sponges were freely used to prevent escape into the general cavity. Dry toilet of peritoneum with two-per-cent. iodoform gauze drainage. Two stitches tied on either end of wound; central suture left untied. First dressing changed on third day. It contained foul smelling pus. Irrigated with two-per-cent. solution of creolin. The wound healed rapidly and an uninterrupted recovery followed.

INGUINAL HERNIA WITH INCARCERATION OF THE VERMIFORM APPENDIX.

DR. T. B. SPENCE presented a patient who came to him about six weeks ago for operation for a hernia which he had had nearly two years.

When he first came under observation he had a large ring. The hernia was not down when the speaker saw it, but a boggy feeling could be obtained at the upper portion of the inguinal canal. He also had complained of perhaps a little more pain than people ordinarily have with a hernia.

He was put on the operating table and the usual incision was made. As the canal was opened it was found that there was a large mass blocking up the internal ring and extending into the abdomen. The internal ring was enlarged by incising the internal oblique and transversalis muscles, and this mass, which was found to be hard, boggy and edematous, gradually pulled down, and the cord was found spread out upon its surface and very densely adherent to it. By pulling the tumor down and by blunt dissection the peritoneum was finally reached. It was supposed at the time of operation that it was a malignant condition, and for that reason the sac was not opened until exposed above the internal ring. The peritoneum was then opened, and the whole thing was found to be pretty closely plastered to the cecum, and continuous with the vermiform appendix. This was cut off at the base. It was thought wise not to attempt to dissect the cord away from the sac, because he thought he was dealing with a malignant trouble, and in addition to that the patient went very badly under the anesthetic. The wound was sewed up with buried sutures very hurriedly and the patient was gotten in bed. He responded quickly to stimulation. Primary union resulted.

The pathologist reported the specimen was not malignant. On opening the sac it was found very greatly thickened, the incarcerated appendix was constricted very closely at the internal ring, and it had begun to become gangrenous.

STRANGULATED INGUINAL HERNIA WITH APPARENT REDUCTION.

DR. T. B. SPENCE also reported the case of a man about the age of fifty-three. He had had a hernia for two years.

About a month ago he had difficulty in reducing his hernia. He had never had much difficulty before, but he was unable to get it back this time at all, and he went into a neighboring doctor's office. The doctor put him on the table, and with a little difficulty got the hernia back. As it went back there was a sharp pain and the patient felt somewhat faint, but soon recovered from this condition, although he continued to have some pain. The doctor told him that he feared the reduction had been only partial, told

him to go home and go to bed, and to let him know if he had any trouble during the night. There was some pain during the night and the patient vomited a few times. The next morning he was somewhat easier, although he had some pain then, and the doctor told him to call him if he had any more trouble. At noon he was still not very uncomfortable, and a little later he began to have the pain again and the vomiting started up. He was transferred to the Methodist Hospital. Enemata had been given, but no effect was gotten from them—the patient passed no gas by rectum. Examination of the patient showed, apparently, a complete reduction of the hernia. There was no mass in the inguinal canal whatever; no mass could be felt above it; nothing could be found in the abdomen out of the way. The pain the patient complained of was mostly referred to the median part of the abdomen, not over the region of the hernia at all.

A vertical incision was made above Poupart's ligament, the abdomen was opened, and a small portion of the ileum was found to be engaged in the internal peritoneal ring. This could not be released until the constriction had been relieved by a small incision, when it readily popped back into the peritoneal cavity. The patient's condition was good, and, although he was suffering from a chronic nephritis and had a bad heart, it was considered a wise thing to go on with the radical cure of the hernia, which was done. Primary union. He was up on the twenty-first day.

It is the first case of incomplete or apparent reduction that the speaker had seen.

THE LONG ISLAND MEDICAL SOCIETY.

STEPHEN L. TAYLOR, M.D., Editor.

The 120th regular meeting was held on the evening of May 5, 1903.

The President, DR. R. H. POMEROY, was in the Chair.

SCIENTIFIC PROGRAM.

Paper: Perforation of the Bowel in Typhoid Fever. By Dr. W. H. Rankin.

The following is an abstract of Dr. Rankin's paper:

Between 2 and 3 per cent. of all typhoid fever patients suffer from perforation and more than 50 per cent. of these perish, despite every effort

of modern medicine or surgery. Leyden, Wilson and Mikulicz, 1884 to 1885, were the first to advocate operation for perforation. Early diagnosis is essential. This is often difficult. According to Fitz, of 76 cases recorded, 56 were of sudden onset, 15 gradual, 5 showed no symptoms. Cases often present symptoms of perforation and afterward recover. Osler's schedule in cases suspected of perforation is a valuable one.

I. The night superintendent or head nurse should notify the house physician of any complaint of pain, hiccough, vomiting, rise of pulse or respiration, sweating or signs of collapse.

II. (a) Character of pain should be noted, whether simply an aggravation of abdominal pain, as might occur in diarrhea or constipation or whether sudden or intense, and whether it persists, despite all ordinary efforts to relieve it. (b) Locality of pain, whether diffuse, localized, in iliac or hypogastric region. Severe abdominal pain may be caused by pleurisy, distended bladder, cholecystitis, packed rectum or may follow an enema.

III. Condition of abdomen. (a) Whether flat scaphoid or distended. If distended, the location of the distension, whether uniform. (b) Respiratory movements, whether uniform and whether seen above or below the navel. (c) Palpation. Note the degree of tension, tenderness, muscular rigidity and where located. (d) Percussion. Liver flatness, in middle, nipple or mid-axillary line, to be noted every three hours. Obliteration may occur in a flat as well as a distended abdomen. (e) Auscultation. Obliteration of signs of peristalsis or the presence of friction. (f) Examination of rectum for tenderness or fullness between the rectum and bladder. (g) Stools. Character, frequency, presence of blood and sloughs.

IV. General condition of patient. (a) Feces, whether change of expression. (b) Pulse change in rhythm, rate and force. (c) Temperature, whether sudden drop or whether it occurs after a bath or not. (d) Respiration, whether shallow or sighing; sudden increase not infrequent. (e) Sweating. (f) Vomiting. (g) Hiccough.

V. Blood count, leucocytosis, whether stationary or rising.

Perforation is most likely to occur from the second to the fourth weeks.

The author reports a case of his own, a typhoid with a typical course until the fourteenth day, when the nurse reported the presence of mucus in the stools. The following day there was a chill

followed by a rise, and later a fall of temperature. No tenderness of abdomen, no rigidity. The two succeeding days the patient was comfortable. A chill occurred on each of the two following days, after having had an enema. Temperature rose to 103, subsiding to 99 in a few hours; pain in the hypo-gastric region. On the following day a mass could be felt in the right side of the abdomen, movable, not tender. About the twenty-eighth day a consultation was held with Dr. Brinsmade. The mass could be easily palpated through the right lumbar region, not tender; no rigidity. Pulse 86, temperature 99.4, respiration 22. Two days later a second consultation was held. It was then thought best to operate and the patient was removed to the hospital. On opening the abdomen the mesentery was found thickened, infected and softened on the lower part of the ilium and for several inches on the colon; some local peritonitis, the cecum being bound down over the appendix; appendix normal. Manipulation was found impossible on account of the softness of the mesentery. Drainage was provided and the remainder of the wound closed. The patient lived several hours, when general peritonitis developed, from which he died. It was thought that the infection originated from a pinhole perforation, which probably caused the first chill on the fifteenth day. The author thinks the most significant thing at the time to warrant surgical interference was the mucus passed and the slight pain in the abdomen. The lack of severity of the symptoms noted, at any time, is a noteworthy point.

Dr. Polak reported a case operated in the tenth week. This case had had a series of relapses. The symptoms pointing to perforation were sudden pain in the right side, muscular rigidity, rise of pulse from 90 to 130, subnormal temperature. At the operation no perforation was found; the ilium was found collapsed for about four feet. It was believed that the condition of the intestine was due to toxemia, causing a paralysis of the spinal nerves.

Dr. Cornwall reported a case of typhoid fever in a middle-aged man which had run a severe course, high temperature, delirium, etc., until the third week. During the third week the patient suddenly developed tympanites, the abdomen becoming extremely tympanitic in about three hours. The temperature dropped from 103 to 99; pulse had been about 120 and rose to 130; respiration became labored. The abdomen was found extremely tense, the tympanitic resonance

extending on the right side to the nipple. Pain and tenderness could not be elicited as the patient was delirious. All efforts to relieve the tympanites were unavailing. Operative interference was considered, but decided it would be useless. The patient died about ten hours after the beginning of the tympanites.

Twice during the ten days preceding this attack there had been sudden falls of temperature and slight rises of pulse, followed by the presence of blood in the stools.

At the autopsy there was found to be gas in the peritoneal cavity. No perforation could be found, it being too small to be seen.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

November, 1902.

Paper: Ventral Suspension and Ventral Fixation for Prolapse of the Bladder with the Uterus. By DR. R. L. DICKINSON.

DISCUSSION.

DR. CHAS. JEWETT: The doctor is to be congratulated on the good results he has obtained by bladder suspension. Cystopexy has not, however, met with much favor among gynecologists. It has been done by Byford and was practiced more than ten years ago by Tessier, Terrier and others in Paris.

The operation described is open to the objection that should the pedicle give way after suspension of the uterus the cystocele will recur. Again the suspension may become a fixation with the usual consequences in the event of pregnancy.

Any operation for the cure of cystocele should take into account the injury which the fascia of the vesico-vaginal septum has suffered by stretching and tearing. That injury should be repaired by some one of the approved plastic methods. This is the most essential part of any procedure for the surgical treatment of cystocele.

In prolapsus uteri one of the most essential lesions is the marked relaxation of the utero-sacral ligaments. A too often neglected factor in the surgery of uterine prolapse is the correction of the latter injury. The utero-sacral ligaments should be shortened, either by the vagina (Bovée) or by the abdomen. When the cervix is held well backward and upward by shortening the utero-sacral ligaments and the fundus held forward either by shortening the round ligaments or by ventral suspension or fixation, the axis of the uterus maintains its normal relation to that of the vagina—nearly a right angle—and falling is impossible.

The treatment of cystocele then should be addressed mainly to the injured structures in the vesico-vaginal septum.

The treatment of procidentia should aim to hold the cervix back as well as the fundus forward, thus resting the uterus on the pubic shelf and not leaving it to hang upon a pedicle. A posterior colporrhaphy must of course be added.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed BROOKLYN MEDICAL JOURNAL, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, AUGUST, 1903

THE PATERNALISM OF THE GOVERNMENT AS IT AFFECTS PHYSICIANS.

Some of the best studies of the effects of foods and their relative values under varying conditions, have been performed under the auspices of the Government at Washington.

Lately, experiments upon foods treated with certain well-known preservatives such as boric acid and the salicylates, have been conducted under the direction of Dr. Wiley of the Department of Agriculture.

Volunteers who have presented themselves and who have been accepted for the purpose of experiment, have been fed for eight months upon the foods, regarding which the investigations were instituted. The published report of the investigations may be looked forward to with absolute confidence; for while the conclusions reached will have, it is true, a commercial bearing, yet they will have been based upon data obtained by absolutely impartial and scientific methods, and the deductions arrived at may be regarded as strictly accurate.

When the published results shall have reached the hands of the profession, it would not be surprising if a wider knowledge, both of the effects of certain foods and of the drugs employed as preservatives of them, will be shown to have been acquired.

Experiments of a similar kind are likewise purposed for an extended investigation into the effects of the use of various kinds of tobacco upon the human organism. Volunteers to enter the ranks of official smokers of the weed will naturally not be difficult to procure. There will, however, be "a difference," in that they will smoke when, and whatever they are ordered. The immediate and remote effects will be accurately noted, together with those of the sudden with-

drawal of the tobacco, the effects of which discontinuance, in each case, will be observed for at least a month.

Experimentation of the kind referred to is only possible with the expenditure of considerable sums. It may be for this reason that tests of a really accurate kind for the purpose of determining certain cardinal facts often supposititiously taken for granted, regarding the effects of certain foods or drugs in health and disease, have until now never been undertaken.

Experimentation is the basis of all true science and is always to be commended. We believe that physicians have cause to be proud of the governmental departments which are alive to the value of, and capable of executing, up-to-date scientific work.

NEEDS OF THE INDEX MEDICUS.

The medical profession has had cause for self congratulation by reason of the improved conditions of publication in the case of the *Index Medicus*. Its financial responsibility has for a time at least been assumed by that friend of librarians, Andrew Carnegie.

It can not be supposed, however, that a continuance of the favorable conditions will indefinitely remain, unless the profession itself expresses appreciation of its usefulness by a general support of the work.

The utility of the *Index Medicus* is not only of direct advantage to the man who would cull from it facts for classification, comparison and reference, but it also enables one whose contributions to medical literature may be of the most infrequent occurrence, or which may have appeared in an obscure journal, to receive proper credit for his work, though, it may be, long after his article has appeared.

Without such a work as the *Index* many a contribution of merit or record of a rare or unusually interesting case would be soon lost in the great sea of current medical periodicals. Records of the most careful observation are quickly lost sight of unless there is a reference or an index which supplies the student with the necessary clue.

An index is one of the most necessary tools of every working physician. It would almost be a catastrophe to have the *Index Medicus* become extinct. The future, perhaps even more than the present, needs it. Support of the *Index* should become part of medical tradition, since its interests make for the welfare of the profession of medicine.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

Dr. Lewis S. Pilcher is summering at the Eagle's Nest, Lake Hopatcong, N. J.

Dr. J. M. Van Cott is at Shelter Island for the summer.

Dr. and Mrs. Ernest Palmer of 155 Clinton Street, announce the marriage of their daughter, Natalie, to Mr. Edward Aborn, of East Orange, N. J.

On July 13, 1903, Dr. George Chappell Crawford, L. I. C. H., '94, died at his residence, 49 Sumner Avenue, after a brief illness.

England has recently conferred upon Glentworth Reeve Butler, A.M., M.D., of Brooklyn, the honor of an election as life fellow of the Society of Science, Letters and Art, of London. Dr. Butler is at present travelling in Europe, where the opportunity of being received by the fellow members of the Society will be afforded him.

The members of the Brooklyn Neurological Society were entertained at Amityville on June 18 by Dr. and Mrs. O. J. Wilsey. From Dr. Wilsey's home the members were driven to the Long Island Home and from thence to the dock. A launch conveyed them to Hemlock Beach, where a shore dinner was served.

Dr. John D. Rushmore has been elected Dean of the Faculty of the Long Island College Hospital in place of Dr. Raymond, resigned.

Dr. Joseph H. Raymond was recently elected Dean of the College Faculty of the Long Island College Hospital to succeed the late Professor Jarvis S. Wight. Dr. Raymond subsequently resigned, preferring the position of Secretary of the Faculty, which he has held for many years.

Dr. Charles Dwight Napier has been elected Orthopedic Surgeon to the Williamsburgh Hospital.

Dr. Frederick Tilney, valedictorian of the class of 1903, L. I. C. H., announces his marriage to Miss Camilla Hurley, daughter of Mr. and Mrs. Thomas Jefferson Hurley, of Florence Court. Dr. and Mrs. Tilney are at present in Berlin,

where the doctor is engaged in hospital work in Charité Hospital.

An association has been formed among the craftsmen of the second Masonic district of the Borough of Brooklyn for the purpose of furthering the erection of a Masonic hospital and shelter.

The surgeons of the Brooklyn regiments shot a revolver match with the line officers—teams of four—one line officer and one surgeon from each regiment. The company officers had thirty to pick from from each regiment, while the surgeons had three. The scores of the opposing team out of a possible 150 were: 136, 110, 128, and 128. Those of the surgeons were: Dr. F. J. Wood, 129; Dr. Napier, 140; Dr. de Forest, 139, and Dr. Macumber, 137. The surgeons won by 43 points.

Dr. John H. Sterling announces his removal to 45 Hanson Place.

The news editor takes pleasure in recording the summer vacation plans of the following physicians:

Dr. and Mrs. Frank West, Murray Bay, Canada.

Dr. John A. McCorkle, trip through British Isles.

Dr. Ernest Palmer, Thousand Islands.

Dr. and Mrs. James Watt, Water Mill, L. I.

Dr. and Mrs. Charles L. Fincke, Quogue, L. I.

Dr. and Mrs. A. T. Bristow, Ronkonkoma, L. I.

Dr. and Mrs. Robert L. Dickinson, Quogue, where they will occupy their new Japanese bungalow.

Dr. T. M. Lloyd, trip to Europe.

Dr. Fred'k J. Wood, trip to Europe.

Dr. and Mrs. James Ingalls, Sunderland, Mass.

Dr. and Mrs. Joel W. Hyde, Lake Placid, Adirondacks.

Dr. and Mrs. H. Beekman Delatour, Islip, L. I.

Dr. and Mrs. Henry Wallace, Lake Spofford, N. H.

Dr. and Mrs. William E. Butler, Shelter Island.

Dr. and Mrs. Robert J. Morrison, Newport, R. I.

Dr. and Mrs. Clarence R. Hyde, Wickford, R. I.

Dr. Nathan T. Beers, Thousand Islands.

Dr. Charles D. Napier, Sag Harbor.

Dr. J. Richard Taylor, Sag Harbor.

Dr. and Mrs. Henry A. Alderton, Berlin, Germany.

Drs. William F. Campbell, Arthur Bogart,

Purdy Sturges and Walter Sherwood will take a six weeks' trip through Holland, sailing from New York on the Steamship Kroonland, August 1st.

Dr. Gordon R. Hall will take a trip west during August.

In the death of Dr. Thomas Rochester, Brooklyn loses one of its best known physicians. His death occurred July 11, at Rochester, N. Y., founded by Dr. Rochester's great-grandfather, Colonel Nathan Rochester. Dr. Rochester had been ill with consumption for the past three years, and had just returned from an extended trip to Brazil. He was graduated from Rochester University, and later from Buffalo Medical College. He began practice in Brooklyn twenty-five years ago, and affiliated himself with various medical societies; among them the Kings County Medical Society, the Practitioners' Club, and the Kings County Medical Association. He was also a member of the Oxford, Marine and Field, and Reform Clubs. A wife and five children survive him.

Dr. Charles Wardell Stiles is reported to have discovered a parasite of the mosquito. The parasite is known as yet only in a larval state as an inhabitant of the intestine of the mosquito. The species, newly named *Agamermis culicis* by Dr. Stiles, was forwarded to him by Prof. John B. Smith of Rutgers College. The habitat of the organism is not yet delimited, being only known from the locality referred to. It is possible that developments of great importance concerning the mosquito tribe may follow the discovery.

AN ESSAY UPON THE GENERAL PRINCIPLES OF PREVENTIVE MEDICINE,

BY W. WAYNE BABCOCK, M.D.,

Lecturer on Pathology and Bacteriology, Medico-Chirurgical College, Philadelphia; Pathologist Kensington Hospital; Assistant Pathologist Philadelphia Hospital, etc.

Awarded the first prize of one thousand dollars in the competition instituted by The Maltine Company.

(Continued from Page 351.)

The Destruction of Flies.

In all diseases in which infection occurs through the alimentary tract, flies should be considered as important carriers of the infection, until this possibility is absolutely disproved. As has been previously shown, flies are capable of carrying not only bacteria, but also the eggs of

various parasitic worms that infest the intestines. It has been proved that they may deposit contaminating microorganisms upon food and in surgical solutions, upon the skin or in wounds. Instead of serving as useful scavengers, their presence seems to be a constant menace, whether in the operating room, ward, camp, barracks or dwelling.

Life-history.

The common fly, *musca domestica*, usually deposits her eggs, about 120 in number, in the crevices of the manure piled so frequently about stables. Under the influence of heat and moisture, the larvæ are hatched and pass, after several stages, lasting in all from five to seven days, into the pupa stage. Five or seven days later the fly matures from the puparium. The entire period of ovulation lasts, therefore, from ten to fourteen days and the reproductive potentialities of a single fly in one season are enormous.

In the larval or pupal stage a fly may be destroyed by gnats or other hymenoptera or by certain beetles or scorpions, while many birds also feed upon them. In the adult condition their chief enemies are spiders and birds, although at times they become diseased from a parasitic fungus (*Empusa muscæ*). To rid a community of flies it is of first importance that their natural breeding places be abolished. All forms of excreta, including various manures, together with the soiled bedding from stall or stable, should be made inaccessible to flies, either by proper inclosure or by stacking it in piles covered with earth or lime. The frequent adding to the manure of layers of chloride of lime is advised by Howard. This destroys the larvæ. The chief source of contamination of flies is the excrement of man or certain lower animals. Their favorite places of rendezvous are the stable, privy, or latrine, and the kitchen or mess-room. As thus far it has been impossible to exterminate these pests, it is imperative that they should at least be denied access to sources of infection, and to food. In camps, where transmission of typhoid fever by flies is a special danger, the former object may be attained by the chemical disinfection or incineration of feces, by burying the excrement (most easily done in long shallow furrows) or by keeping it well covered with dry earth, ashes, lime, or chlorinated lime. The protection of food is best obtained by the general adoption of screens in the camp. Instead of individual tents a general mess-hall, carefully protected by fly-nets should be used for dining. The methods of fumigation useful against mosquitos may likewise be applied for the destruction of flies. It is of special importance that flies be excluded from operating rooms and from wards, especially if the latter contain patients suffering from contagious diseases. Sputum cups, which often attract insects, should contain a disinfectant solution and be provided with lids that should be closed except during use.

SIPHONAPTERA.

The Extermination of Fleas.

The fact that adult fleas live upon the blood of warm-blooded animals, possess powerful organs of locomotion, and frequently change their hosts, enables them to play an important part in the dissemination of disease. The common house flea (*Pulex irritans*) and the cat and dog flea (*Pulex serraticeps*) most often attack man. The eggs of the house flea, 8 or 12 in number, are laid upon the hair of animals, from which they readily fall, or in shaded dusty places. From the eggs larvæ develop; these are transformed into pupa, and may or may not form cocoons, from which the adult insect emerges, the entire period being about four weeks. The reproduction of the dog and cat flea is more rapid. In the larval stage, fleas are readily killed, but the adults are resistant. Carpets, rugs, matings and collections of dust and rubbish, harbor them. By using bare floors and by frequently sweeping, their development in houses can usually be prevented, provided a new supply is not repeatedly introduced by the domestic animals. Pyrethrum is efficient against the larvæ, and when rubbed into the hair of animals will stupefy the adults so that they may be removed and destroyed. A solution of creolin forms an efficient wash. To kill the pests in carpeted rooms is more difficult. Dusting with pyrethrum, sprinkling with benzine (taking care that there is no means for its ignition), or fumigation with formaldehyde or sulphur dioxid may be tried. It may be necessary to remove the carpets and have the floor scrubbed. The adult fleas may be caught by scuffling along the floor in one's bare feet and seizing them by the wetted fingers as they alight upon the legs, or they may be enticed upon sticky fly paper affixed above the ankles. In the presence of infection that may be conveyed by fleas domestic animals should be excluded from human habitations, and rats and mice, which so frequently harbor the insects, exterminated.

The Destruction of Bedbugs.

Bedbugs secrete themselves in crevices of walls and beds, in which they lay their eggs and from which they emerge at night to suck the blood of animals. It has been asserted that they live in large numbers in woods and are carried by birds and bats. This seems to be insufficiently substantiated. To secure their removal all crevices should be obliterated by repapering walls and by varnishing or painting beds and bed-springs. Sulphur fumigation is often very efficient and the use of pyrethrum powder is a good palliative. Bed-rooms and beds should be frequently renovated and metallic bedsteads are preferable to those of wood. Formaldehyde disinfection often fails to destroy bedbugs, but the washing of infected articles with strong solutions of mercuric chloride is often advantageous.

The Destruction of Lice.

A single species of louse is parasitic only upon single species of animal. Indeed, certain forms limit their activities to a particular part of the body. Thus, head lice remain in the hair of the head, body lice remain in the clothes or upon the hairless parts of the body, while the crab louse infests particularly the coarser hairs of the body, especially of the pubis, and does not live in the hair of the scalp. The nits or eggs are deposited upon hairs, to which they firmly adhere. From the eggs the insects emerge as adults in miniature. The eggs of the body louse are deposited in the folds of clothing. The use of a mercurial or sulphur ointment, or a lotion of staphisagria (stavesacre) or delphinium (larkspur) for the hairy parts of the body, and sulphur fumigation of the clothes will readily destroy these parasites.

The Destruction of Rats.

The destruction of rats is demanded in the presence of plague and perhaps certain other diseases. In maritime cities it is of especial importance that rats be prevented from coming ashore from vessels either by anchoring the vessel far out or by keeping the gang-plank in and the hawsers guarded by properly shaped metal funnels.

In an infested vessel the rats may be poisoned, trapped, or suffocated. *Trapping* is not to be depended upon. *Poisoning* by food is less certain than that by certain gases. Of these *sulphur dioxid*, generated by burning sulphur, is effective if in sufficient concentration. Asphyxiation may be produced by discharging the contents of cylinders of liquefied *carbon dioxid* into the hold until lighted candles lowered into the vessel are promptly extinguished. The use of the more toxic *carbon monoxid*, produced by burning charcoal is advocated by De Farrari. Six kilos (13 pounds) of charcoal are used for each 100 cubic meters (3,530 cubic feet) of space and ignited by the use of kerosene. All openings are kept tightly closed for eight hours and then thoroughly aired before it is entered by men.

Hydrocyanic acid, advised for the destruction of rats as well as insects and other vermin, is one of the most efficient agents for this purpose known, but it is dangerous and expensive. Like other gases, it has little penetrative power, and it may discolor and alter the texture of fabrics. Fulton advises the use of 1 kilo (2.2 pounds) of potassium cyanid for each 283 cubic meters (1,000 cubic feet) of space. To each kilo is added 1½ liters (quarts) of sulphuric acid dissolved in 2.25 liters of water. The room should be tightly closed, and, owing to the very poisonous nature of the gas, arrangements should be devised so that the chemicals may be mixed after the operator has left the room. Moreover, devices should be used for the thorough airing of the house before it is entered by human beings. The time of exposure should be about twenty-five hours, and an equal time should be given for air-

ing. It is effective against all forms of animal life.

Danysz's Bacillus.—Danysz attempted to exterminate rats by means of a cocco-bacillus resembling the *Bacillus typhi murium*, which is pathologic for mice. He isolated this organism from an epidemic among field-mice, and by intensifying the virulence, obtained cultures that when distributed upon bread were said to be successful in destroying large numbers of rats in sewers, in shops and on farms. Investigations by other observers, however, indicate the total inefficacy of this method as a practical measure for the purpose designed.

In the presence of plague, not only should living rats be exterminated, but the bodies of dead rats should promptly be burned. It is a current belief in countries where plague is endemic that contact with a dead rat will produce the disease. It is also noteworthy that fleas tend to leave the body of an animal when it dies, thus menacing the health of persons or animals in the neighborhood.

The Destruction of Rabid Animals.

Dogs, cats, horses, hogs, cattle, wolves and other lower animals that show symptoms of rabies should at once be securely confined, or if the evidence of the existence of the disease be clear, killed. In dogs the incubation period of rabies is variable, eight weeks being about the average time. The disease usually begins by a stage of depression with lost or perverted appetite, followed by a stage of excitation or madness in which the animal utters hoarse howls and attempts to run hither and thither, biting at every animal that may come in his way. After three or four days depression and paralysis occur, the mouth drips bloody, foamy saliva and death follows. In about one-fifth of the affected dogs there is not excitation, but a condition of weakness followed by paralysis (*paralytic form*) and death. Should a person be bitten it is of utmost importance to positively ascertain the presence or absence of rabies in the animal inflicting the bite, as this determines the necessity of using the Pasteur inoculations. Thanks to Van Gehuchten and Nelis, who have shown that rabies is associated with quite destructive changes in the peripheral ganglia of the cerebrospinal and sympathetic system, this may be determined within six hours. The head and neck of the animal should be removed, packed in ice and dispatched to a pathological laboratory for microscopic examination of the pneumogastric ganglia. The virus of rabies causes a proliferation of the layer of endothelial cells lining the capsules and finally their destruction and replacement by round cells. Care should be taken that these changes be not confused with somewhat similar ones that result from certain other causes. Ravenel reports over 50 examinations without a failure. The ganglia may be hardened in alcohol or a 4-per-cent. aqueous solution of formaldehyde gas, embedded in paraffin or colloidin, sectioned, stained by hematoxylin

and eosin and then studied. If practicable, the animal should be permitted to die of the disease, as the changes are then most characteristic. This rapid examination is sufficient to determine the necessity of treatment, but it is wise to confirm it by inoculating a portion of the medulla of the suspected animal under the dura of a rabbit. If rabies be present the inoculated animal will develop the disease in from 12 to 15 days. If the study of the ganglia indicates rabies, all lower animals that may have been bitten had best be promptly killed, or if very valuable, incarcerated, muzzled and given the prophylactic treatment.

CHAPTER XV.

THE INHIBITION OF THE FACTORS OF DISEASE.

THE PRODUCTION OF IMMUNITY.

IMMUNITY.

The introduction of living parasites into the animal body may determine distinct reactive perturbations; such as alterations in temperature, nervous phenomena, cellular degenerations or other changes, in which case the animal is said to be *infected*; or it may show no recognizable reactions, whereupon the animal is declared to be *insusceptible* or *immune*. The distinction between susceptibility and immunity is not sharp and, in general, when the animal shows but slight functional or structural reaction to the entrance of a pathogenic organism, it is said to possess immunity. The condition is a relative one and necessarily involves two factors: (1) *The virulence and number of the invading parasites*, and (2) *The resistance of the invaded tissues*. Although for convenience these factors are considered separately, it must be borne in mind that practically they are always combined.

Virulence.

Bacteria are subject to wide alterations in virulence. Forms that have caused serious diseases may, within a few days, by the action of the unfavorable influence of heat, light, dessication, special nutriment or other agency, become relatively innocuous. Thus, the bacteriologist has difficulty in maintaining the virulence of such pathologic organisms as the pneumococcus, streptococcus pyogenes and bacillus of plague. To maintain their virulence he continues their growth in the bodies of susceptible living animals. Conversely, bacteria of feeble pathogenic power may acquire intense virulence in the animal body. For this reason necropsies upon those dead of septic infection are especially dangerous. The microorganism has become habituated to the defenses of the body and has acquired the power to overcome them. Thus, from the lodgment of a streptococcus of feeble virulence into a sebaceous follicle of persons with poor resistance, a furuncle may result. A scratch of the knife that opens the fur-

uncle may cause a serious phlegmonous inflammation in a healthy person, while should the surgeon accidentally inoculate himself from this phlegmon he may acquire a serious or even fatal septicemia or pyemia, a result of the action of a streptococcus that some generations back was unable to affect his tissues. Many bacteria including *Bacillus tuberculosis*, *Bacillus anthracis* and *Bacillus typhosus* have degrees of virulence that are more constant and yet they are subject to wide variations. For example, different cultures of tubercle bacilli secured from different species of animals, from different individuals of the same species or even from different organs of the same individual may vary greatly in virulence. Thus, bacilli isolated from bodies dead of general military tuberculosis have been found far more virulent than those secured from "scrofulous" glands. No species of the larger lower animals, neither mammal, reptile, bird or fish, is known, but what has been found susceptible to some variety of the tubercle bacillus. So by analogy we conceive that certain types of tubercle bacilli exist against which no man is immune. As a rule, bacteria acquire virulence against a particular species of animal by living in a related, but susceptible species, or upon a medium approximating in composition the tissues of the particular species. It is important, therefore, that infections by bacteria virulent in man be exterminated from the higher species of mammals, and that efficient measures of disinfection be enforced in treating even apparently trivial infections.

Number.

The results of bacterial invasion may be influenced by the number of microorganisms introduced. Two or three virulent anthrax bacilli may have no effect on the susceptible guinea-pig, while a somewhat larger number determines a rapidly fatal disease. Watson Cheyne found that while the subcutaneous injection of 5,000,000 of *Bacillus proteus vulgaris* produce no lesion, a larger number causes an abscess, a still larger number a phlegmon, while a much larger number of the bacilli determines death within 36 hours. As has previously been indicated, these results are modified by the virulence and avenue of entrance of the bacteria.

Symbiosis.

The virulence of a microorganism may be increased or decreased by association with other bacteria. Thus, the tetanus bacillus in pure culture may be unable to affect the organism, while in association with certain oxygen absorbing bacteria it is able to cause the death of the animal. The death of guinea-pigs follows more rapidly from injection of the anthrax bacillus when the otherwise harmless *Bacillus prodigiosus* is associated. These associated bacteria seem to divert some of the resisting agents of the body from the virulent organisms. Thus it may be that while

the leucocytes are engaged in disposing of the associated saprophytes the pathogenic organisms invade the tissues. Combinations with apparently inert powders such as carmin may likewise favor infection.

Mixed Infection.

In tuberculosis, death is often not the direct result of the activities of tubercle bacilli, but is brought about by the secondary invasion of pyogenic organisms. The action of the bacteria of measles, pneumonia and influenza seems to favor the secondary invasion of the tubercle bacillus. At times association or secondary infection is of use. Thus the pannus resulting from trachoma may partially disappear after inoculating pus from an eye with mild purulent ophthalmia. An erysipelatosus attack may favorably influence the course of lupus as well as certain sarcomata. The course of malignant pustule is said to be restrained by an associated infection with the pus-forming cocci.

Tissue Resistance.

Many factors influence an animal's susceptibility to the action of pathogenic organisms. First of all, certain families or species have an inborn resistance to certain forms of infection. This is termed *natural immunity*. The Chinese and Japanese, for example, are relatively immune to scarlatina, the negro shows a resistance to malaria and yellow fever. Man is immune to symptomatic anthrax and hog-cholera. The white rat is insusceptible to anthrax, while the house rat succumbs. Likewise, Algerian sheep and frogs are immune to anthrax, while the ordinary herds of sheep and toads contract the infection.

Most races enjoy a partial immunity to measles, while certain savage tribes, as the natives of the Faroe Islands, are very susceptible, so that among them it has a high mortality. When brought to civilized centres, Indians and Eskimos are prone to soon develop a fatal form of tuberculosis. Likewise, in certain families there seems to exist a relative susceptibility to tuberculosis. Besides inherited defects, the normal resistance of the tissues to infection is reduced by food imperfect in quality or quantity, the use of alcohol, chloral, chloroform or other drugs, overwork, trauma, and by the presence of certain other diseases. All of these effects have been shown not only by clinical observations, but also by experimentation upon the lower animals. Trauma may determine the localization of the tubercle bacillus, and diabetes favor its invasion of the tissues.

Exposure to heat, cold and dampness reduces resistance, hence the familiar expression "taking cold." The Samoans when they went unclothed were comparatively healthy. Their skins wet by passing showers, soon dried. Now their clothing when wet keeps their bodies damp for a considerable time and pneumonia, tuberculosis and other respiratory disorders are prevalent.

The relation of age to disease has already been considered. Certain infections pick out actively growing or functioning organs. For example, tuberculosis in children frequently attacks growing bones, rheumatism often affects the muscles most used.

Acquired Immunity.

It has long been known that after recovery from smallpox, yellow fever, scarlatina, measles or many other infections, the body is usually immune against the particular malady. How the body recovers, and why it remains immune, has been the subject of much speculation and experimentation. The older theories of *exhaustion* of some substance essential to bacterial growth or the *retention* of some substance inimical to their life, were displaced by the theory of *phagocytosis*—that certain ameboid cells, especially the leucocytes devoured the invading bacteria. That certain leucocytes do take bacteria within their substance has amply been proved, but that this constitutes the chief defense against infection has not been substantiated. Leucocytes that have failed to destroy bacteria may even serve to diffuse them through the body.

The bacteriolysins and antitoxins upon which we base our present conception of immunity have already been considered. It remains for us to describe how they may be artificially brought into use in the prevention of disease. Artificial immunity is termed *Active Immunity* when it is developed entirely within the body of the animal possessing it, and *Passive Immunity* when it has been developed within the body of another animal, and is acquired, in part at least, by simple transference. Active immunity is of slower development, but is much more persistent than passive immunity. Both are, as a rule, specific forms of resistance, protecting only against a single form of infection. Active immunity may be considered as a form of *prophylactic infection* or *prophylactic intoxication*. It may artificially be produced by introducing into the animal's body

1. Sublethal doses of virulent virus.
2. Attenuated or modified virus.
3. Dead bodies of bacteria.
4. Extractions from bacterial cultures.

Those forms produced by the injection of the living or dead bacterial bodies result in *lysogenic* types of immunity, while those produced by the introduction of bacterial toxins are characterized by the appearance of antitoxin in the blood. The first may be designated as an *anti-infectious* form of immunity, the second as *antitoxic* form of immunity.

Virulent Infection.

The Chinese 3,000 years ago are said to have practiced the introduction of crusts from variolous patients into the nostrils of children, that they might acquire smallpox and thus possess fu-

ture immunity against the dread disease. This led to the practice of inoculation that spread to Persia and finally to Turkey.

Early in the eighteenth century Mary Wortley Montague, wife of the British Ambassador of Constantinople, wrote from Adrianople a letter containing this celebrated paragraph: "Every year thousands undergo this operation (inoculation with variolous matter), and the British Ambassador says pleasantly that they take the smallpox here by way of diversion, as they take the waters in other countries. There is no example of any having died of it, and you may believe I am satisfied of the safety of their experiment, since I intend to try it on my dear little son."

This led to a rather extensive adoption in England, and finally in America, of the practice of direct inoculation of variolous material into well persons. Objections to the method were that it produced a disease from which one might contract virulent smallpox, while in a small proportion (about 0.3 per cent.) of cases a fatal result followed. It was finally abolished (in 1840) by law in England. At present virulent virus is not employed in human practice.

Forms of Attenuated Virus.—A number of these were introduced by Pasteur. The method of attenuating the virus may consist of:

a. *Growth in the Body of a Resistant Animal.* Variolous matter introduced into the body of the cow may be transformed into the local and comparatively harmless affection *vaccinia*. Upon re-introducing this into man, it is found to have been permanently reduced in virulence. In 1796 Jenner deliberately infected a human being with the virus of cow-pox, as a preventive measure against variola. The efficacy of this procedure was proved by repeatedly inoculating the vaccinated lad with matter from smallpox pustules. In all, twenty inoculations with variolous matter were tried and all failed. Vaccination with cow-pox was introduced into the United States in 1800 by Waterhouse ("the American Jenner"), who first vaccinated his own children and then proved their immunity by having them exposed in a pest hospital and inoculated with the virus of smallpox. He enlisted the active support of President Jefferson. The utility of this preventive measure has been overwhelmingly demonstrated by a century's use.

b. *Drying the Virus.* This is the method adopted by Pasteur in prophylactic inoculation against rabies. Pasteur found that in rabbits dead of hydrophobia, the spinal cord was especially virulent, but if the cord were dried, the virulence progressively diminished until at the end of ten days emulsions of the cord were found to be comparatively harmless. In practice it is found possible to create immunity after a person has been bitten and before the disease develops. About two grams of an emulsion of cord dried from 7 to 10 days is first used. The injections are repeated each day, using the same dose but an emulsion from a more recent cord, until on the 25th day the emulsion used is made from a cord dried only three days, whereupon immunity

is considered to have been developed. For bites about the face a more rapid, intensive form of treatment is employed. The mortality of persons bitten by rabid animals, that receive these prophylactic injections is usually less than one-half of one per cent.

c. *Heating the Virus.* Many pathogenic bacteria when exposed to heat, diminish in virulence before the lethal temperature is reached. With certain bacteria, notably the anthrax bacillus, a persistent reduction in virulence may thus be obtained. Upon this principle, as elaborated by Pasteur, depends the manufacture and use of the anthrax vaccine. By growing the organism for fourteen days at a temperature of 42°-43° C. (107.6°-109.4° F.) a culture of slight virulence is produced. For practical purposes, two or three cultures of different strengths attenuated in this way are usually employed, being designated as vaccines 1, 2 and 3. These have a graded virulence, No. 3, being the most powerful. The animal is first injected with No. 1, later with No. 2 and finally with No. 3; about 1 c.c. of a well-grown bouillon culture being used at each dose. This method has been chiefly employed in protecting cattle, but owing to the difficulty in "rounding up" large herds of cattle three times, two injections are often supplied by manufacturers instead of three. As anthrax in man is an avoidable disease, this method is not employed in human medicine.

The prophylactic injection against *blackleg* (symptomatic anthrax) is made of the powdered muscular tissue of a diseased calf in which the spores have been attenuated by drying at a temperature of from 85° C. to 104° C.

Haffkine's prophylactic against *cholera* consisted of first injecting cultures of cholera bacilli attenuated by growing in a current of air at 39° C. and subsequently injecting a portion of a virulent culture. Later Haffkine found it possible to omit the preliminary use of attenuated virus. Apparently a distinct protection against cholera is conveyed to man by these inoculations.

The virulence of bacteria may be also reduced by exposure to *light*, to certain *chemical substances*, to *different species* of bacteria, to *electricity* or by development upon certain *unfavorable media*.

d. *Dead Bodies of Virulent Bacteria.*—This method of inducing an active immunity has been chiefly employed for the prevention of plague by Haffkine and others. The bacilli of plague are grown in massive culture, usually upon agar-agar or bouillon. They are then killed by a temperature of 70° C. (158° F.) for one hour. From 1 to 3 c.c. of the bouillon culture is used as a prophylactic injection. While not an absolute preventative, the method certainly seems to distinctly reduce the liability to contract pest. No unfavorable influence upon the general health of those inoculated has been observed.

Lustig and Galotiti secured the nucleo proteid from the bodies of the bacteria by dissolving them in a one-per-cent. solution of caustic potash. This is acidulated and the washed precipitate

dried and given in doses of about 3 milligrams. It seems to be less valuable than the prophylactic of Haffkine. To immunize against enteric fever, Wright uses 1 c.c. of a bouillon culture of typhoid bacilli sterilized by heat. The bacteria used may also be killed by chemical or other agents, but heat is chiefly employed because of its reliability and ease of management. Wright's prophylactic has been extensively used among the British troops in South Africa, and while not an absolute preventative, it seems to cause a partial immunity, so that an inoculated person, if he does not escape the disease, seems to have it in a milder form.

e. *Extractives from Bacterial Cultures.*—These have their chief value for the production of high grades of active immunity in animals, and in the manufacture of antitoxins. They are represented in *tuberculin*, *mallein* and the more recent *tuberculin O* and *tuberculin R* suggested by Koch. Tuberculin is a glycerin extract, prepared by the long heating of massive bouillon cultures of tubercle bacilli in association with glycerin. Tuberculin O and tuberculin R are prepared by grinding the bacilli to fragments in a mortar, washing by adding distilled water, and precipitating the residue with a centrifuge. The tuberculin R is the sediment, tuberculin O the clear supernatant fluid which contains tuberculin. It is claimed that all of these substances have an immunizing power in the lower animals. They are scarcely to be advised in the prevention of tuberculosis in man, nor is their curative power in cases in which the disease is established sufficiently pronounced to justify their *indiscriminate* use.

In cases in which an active immunity is produced by one of the above methods, it is slow of development, but usually very persistent. Thus, the immunity derived from vaccination for *smallpox* persists for months, and often for many years. The slow development of the immunity renders vaccination, as a rule, of less value after inoculation with the disease against which its protection is directed. Thus, if a man becomes infected with smallpox and is promptly vaccinated, it is probable that vaccinia and variola will develop simultaneously and may run their course, each without special influence upon the other. In cases of *plague*, inoculation of Haffkine's prophylactic after the onset of the disease increases the jeopardy in which the patient lies, by adding to the sum total of toxic material against which his tissues struggle. A marked exception occurs in the case of *rabies*, for here so long a time intervenes between inoculation and the onset of the disease that time is afforded for the development of an immunity.

Passive Immunity.

If certain body-fluids or tissue extracts taken from an animal having a high grade of active immunity, be injected into a nonimmune animal, a degree of resistance may thus almost immediately be transferred to the second animal. If the

active immunity of the first animal was developed by introducing the bodies of bacteria, the second animal will receive an *antimicrobial* or *bacteriolytic* form of immunity; while if the active immunity of the first is a result of the use of bacterial toxins, antitoxic form of immunity will be imparted. That is, in the former case the animal will resist the growth of the bacteria in its body, although it may have comparatively little resistance to their toxic products; while in the latter case it will resist the effect of the toxins, although having little action against the bacteria themselves. As blood-serum is the most convenient substance for the transfer of the immunity, the terms *antitoxic* and *antimicrobial* serums have come into use. Both properties are usually present, the one predominating over the other; and of the two, the antitoxic serums have thus far been most valuable. The serum from animals artificially immunized have so much greater power than that from animals naturally immune as to be universally employed. Moreover, their use is much safer and induces much less discomfort than that of various forms of inoculation. Unfortunately, the immunity produced is quite transient, the immunizing substance being soon eliminated from the body, leaving the latter as susceptible as before. In diphtheria the immunity is known to last about thirty days in man; and if a longer immunity be desired, the injection of diphtheria antitoxin must be repeated. The exact immunizing dose is not known, but it is always safe to use a quantity in excess of that believed to be required. Five hundred units may be taken as an average safe amount for a child. The very great value of this remedy as a prophylactic has been shown in children's hospitals, where by its use, epidemics have quickly been arrested. The tetanus antitoxin is undoubtedly much more valuable as a prophylactic than as a curative agent, but it is so difficult to determine when a person has been inoculated with the bacillus of tetanus that it is rarely employed. In cases of punctured wounds it should be more frequently used. Unfortunately, it is not very stable.

These serums have chiefly been employed for purposes of treatment rather than prophylaxis. Yersin and Lustig have prepared antitoxic serums against plague, by the immunization of horses. That of Yersin seems the more potent. Shiga's antitoxin has proved of value in the treatment of dysentery. The antitoxin derived through action of the pneumococcus, streptococcus and tubercle bacillus, have thus far given conflicting or disappointing results. In the development of the lysins, it is hoped that methods of artificial immunization of wider scope and greater potency will be developed. It should be obvious, however, that methods of artificial immunization will never enable human beings to dispense with the observance of general hygienic precautions. They are specific and protect against single diseases; appropriate food, exercise, sunshine and baths, have a general immunizing effect and increase the resistance of the tissues to all disorders.

BOOK REVIEWS.

SAUNDERS' MEDICAL HAND ATLASES. ATLAS AND EPI-TOME OF HUMAN HISTOLOGY AND MICROSCOPIC ANATOMY. By Dr. Johannes Sobotta. Edited, with Extensive Additions, by G. Carl Huber, M.D. Phila and Lond., W. B. Saunders & Co., 1903. 248 pp., 80 col. pl. 12mo. Price: Cloth, \$4.50.

No lover of the microscope and its revelations could possibly fail to admire this remarkable example of the art of bookmaking; and no earnest student of medicine could fail to be grateful to those who have placed within his reach at moderate cost such a series of beautiful polychrome plates with adequate text annexed, illustrative of the normal morphology of the body.

Only those familiar with the technical work of a modern laboratory can justly estimate the enormous amount of labor involved in producing such a book. The finished product appeals most to him who has exact knowledge of the subject treated. Such an one would say to a beginner of the study of histology, that he could not do better than to possess Huber's American Edition of Sobotta's work. As a text-book it is excellent; as a ready reference, invaluable. The plates alone are worth double the price of the book.

Too much cannot be said in praise of a work which is at once clear in style, exact in arrangement, thoroughly up-to-date and scientific in subject matter, and so wonderfully illustrated.

Germany is indeed honored with the advent of Sobotta's book, and America fortunate in the enterprise which has made an American edition possible.

J. M. VANCOTT.

MEDICAL MICROSCOPY: Designed for Students in Laboratory Work and for Practitioners. By T. E. Oertel, M.D. Phila., P. Blakiston's Son & Co., 1902. 362 pp. 8vo. Price: Cloth, \$2.00.

This book is exactly what it claims to be in the preface, a treatise on medical microscopy written for a beginner, and especially for one who lacks opportunity of contact with one fitted to teach him the use of the microscope from a technical standpoint.

The subject matter is presented in logical sequence, and the statements of fact are clear, to the point, and briefly made—a great advantage in these days of "the making of many books." The author is particularly happy in confining himself to single examples in methods of technique, thus avoiding confusion of ideas and ensuring at the least expense of brain work the acquisition of fundamental knowledge.

The illustrations are fair, the typography excellent. On the whole Prof. Oertel is to be congratulated on having produced a book which must certainly prove useful to many.

J. M. VANCOTT.

COMPEND OF SPECIAL PATHOLOGY. By Alfred Edward Thayer, M.D. Philadelphia, P. Blakiston's Son & Co., 1902. 322 pp. 12mo. Price: Cloth, 80 cents.

This is the companion volume to the "Compend of General Pathology" by the same author. The book is divided into nine chapters which deal with the various organic systems of the body while the tenth chapter is devoted to death by violence and poison, with an appendix giving a synopsis of infectious diseases.

Of the 34 illustrations, a few are original, the others are taken from the standard works on pathology. In the chapter devoted to diseases of the kidneys, Delafield's classification has been followed. The chapter on the blood is based on Ewing's work and Dr. J. C. Johnston has written the chapter on the pathology of the skin. The two volumes should be a valuable aid to medical students.

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, SEPTEMBER, 1903.

No. 9

ORIGINAL ARTICLES.

THE LATERAL AND RETRO-POSITIONS OF THE IMMOBILE UTERUS; THEIR CLINICAL SIGNIFICANCE AND TREATMENT.

BY EDWARD J. ILL, M.D.,
Newark, N. J.

Read by invitation before the Brooklyn Gynecological Society,
May 1, 1903.

THE invitation to read a paper before a Society of such prominence and standing as is this, is an honor one should be thankful for. It brings with it also a great responsibility.

I hope that what I have to say will be thoroughly discussed by those who, themselves, have been interested in an important and little talked of pathological condition.

It is neither a brilliant nor a new operation, neither a great discovery nor an invention that I beg to call to your attention this evening. What I wish to bring before you is simply the deductions of a long record of histories, taken at the bedside and corroborating the observations of a few others.

In September, 1895, I presented to the American Association of Obstetricians and Gynecologists a paper entitled "A Clinical Contribution to the Study of the Lateral Displacements of the Uterus." Since then I have never failed to continue my studies in this direction and thus am able to corroborate what were then my observations. I wish to draw your attention now to the result of my studies since that date, on "The Lateral and Retro-positions of the Immobile Uterus; Their Clinical Significance and Treatment."

The subject is hardly touched upon by the teachers. And little or nothing of it is known by the practitioner or the student.

Let it be distinctly understood that my remarks will be confined to displacements and fixations which are caused by short sacral and short broad ligaments, and not produced by inflammation or adhesions, scars or tumors. It would lead us too far to speak of the accompanying ailments such as endometritis, metritis, prolapsed or enlarged ovaries, laceration of the cervix, etc., except as explanatory. The paper would become too long for your patience and the well-known

fact that one pathological condition rarely occurs in the pelvis will most surely be understood without my special reference to it. In the above spoken of paper I have remarked that Prof. Schultz of Jena, in his masterly book on displacements of the uterus, was the only writer I could find who has observed that lateral displacements produced symptoms. It was this same man who made a study of posterior parametritis resulting in the short utero-sacral ligaments and producing a definite train of symptoms. It was his method of treatment that your speaker has, in the main, and with some modification, endeavored to follow.

Since then Dr. Burrage of Boston, in an excellent paper read before the Obstetrical Society of Boston and published in the *American Gynecological and Obstetrical Journal*, suggests an operation for its cure, in which I have followed him once.

With the exception of what these two writers have said, little has been added to draw our attention to this comparatively frequent and important condition of retro-position.

The lateral displacements seem to be acquired during childhood, or possibly they are congenital, or are acquired during the time of active sexual life.

When the former is the case the symptoms begin with the onset of the menstrual life.

They are due to a shortening of the base of the broad ligament on one side. Concomitant with this and producing a further malposition we commonly find a short utero-sacral ligament. The uterus is thus drawn not only to one side but also into the hollow of the sacrum and elevated above its normal. Thus a short right broad ligament and a short utero-sacral ligament would produce a right lateral and retro-position of the uterus or rather of that position of the uterus into which the ligaments insert, the relative position of the *corpus uteri* depending on other factors. When the short ligament is a utero-sacral ligament only, we have the same malposition, *i.e.*, the cervix is dragged backward, upward and to the side of the short ligament, though in a less degree than in the one spoken of before. When both utero-sacral ligaments are unduly shortened we have a simple retro-position with elevation of the uterus.

This mal-position of the uterus, however, is

only a result of this condition of the utero-sacral or broad ligament. Again, this mal-position rarely produces symptoms, unless the mobility of the uterus is impaired. I need not tell you that the uterus should, like all other abdominal organs, be movable to a certain and limited extent. As soon as this mobility is impaired its circulation and nerve supply become deranged and subjective symptoms follow.

Even an impaired mobility may be devoid of symptoms, unless the ligament or ligaments are sensitive to the touch. We thus have short sensitive ligaments as the cause of the symptoms of which we will speak later on.

A ligament will often be short and produce no symptoms until some specific injury or trauma has taken place. The ligament then suddenly becomes sensitive to the touch and the patient presents subjective symptoms.

The etiology is often difficult to understand, at other times it is quite apparent. Some cases are most surely acquired during childhood or possibly may be congenital, for they produce subjective symptoms with the onset of puberty. No proof of a congenital case can be attained, however, nor that a fetus *in utero* presented the mal-position which interests us.

Some cases are most distinctively and most surely acquired during active sexual life. I have traced cases to direct injury such as falling from a hammock, a misstep, a fall from a car or carriage, a laceration of the cervix followed by febrile disease, a severe attack of inflamed piles, etc.

The disease is comparatively frequent in the unmarried and the sterile married.

The most frequent and disastrous result, because of the fixation of the uterus at the right of the os interum, is an abnormal anti-flexion at times of the body of the uterus, at times of the body and the neck, with its accompanying circulatory and menstrual disturbances.

What does one's actual clinical experience teach us in reference to frequency and character of the disease under consideration in operative practice?

The writer has operated on 2,387 patients, from Oct. 1, 1895, to April 1, 1903, *i.e.*, since he wrote his last paper spoken of. Of this number 139 suffered with some form of retro or lateral position. This does not represent a fair proportion of all cases he has seen, as he commonly lets his younger men operate on them and does not classify them under his own operations.

Among this 139 cases, 91 or nearly 66 per cent. were single, while 48 or a little over 34 per cent.

were married. Among the married, 28 or 59 per cent. were sterile.

By referring to the accompanying table, it will be seen that amongst the single ones, 83 had some form or combination of retro-position, while among the married, 42 had some form or combination of retro-position.

The symptomatology is not very varied. With those cases that are acquired during childhood, or may be congenital, the symptoms begin with the onset of the menstrual epoch and are described as increasing in severity. There is pain in one or the other iliac region, most commonly on the side of the longer ligament. For this pain, I have known of cases where good surgeons have advised the removal of an ovary. The pain is severe enough to prevent exercise. The patient is easily fatigued and soon becomes nervous. The pain at the menstrual epoch is moderately severe in the beginning, but gradually increases until the patient is confined to her bed for the first and second days. It usually takes her several days to recover from her monthly sickness.

In the severe and long continued cases, or in those from neurotic families, sensitive spines or a painful coccyx is now and then observed. These are commonly the most hopeless cases.

In the cases of short sensitive utero-sacral ligaments there is constant backache, located at the sacrum or lower lumbar region. In many of these cases occipital or vertex headache, or both are present. Locomotion becomes painful and the patient often lapses into semi-invalidism.

When but one utero-sacral ligament is short and sensitive, the pain is commonly referred to the sacro-iliac synchondrosis of the short side.

In those cases acquired during active sexual life the pain is referred most commonly to the side of the short ligament.

Nearly all these cases which have suffered for many years are more or less neurasthenic. The worst and most hopeless cases are those with sensitive spines.

The objective symptoms are, briefly, a uterus that is retro- or latero-posed, with short ligaments, sensitive to the touch or painful on stretching them, even in a minor degree, while the cervix shows great fixation. The *corpus uteri* is fixed, to a certain degree only, but not to the extent which we find in those cases due to intraperitoneal exudate or adhesions. The whole uterus is somewhat elevated.

In making the diagnosis we must first remember the normal position of the uterus. Lest we forget it, allow me to remind you that the axis

of the normal position of the uterus is almost horizontal to the axis of the body, with the fundus just above the pubes and the cervix pointing towards the last vertebra of the sacrum or the upper part of the coccyx. It should also lie in the middle of the body. When we find the uterus out of this position, either latterly or posteriorly, and the ligaments which have dragged it thus out of position, sensitive and relatively short, the diagnosis is made. We may thus diagnose it as a retro-position when both utero-sacral ligaments are short, or a lateral position, when the one broad ligament is short. On the other hand, we have a retro-lateral position if one utero-sacral ligament is short or if one utero-sacral and one broad ligament of the same side are short.

We must remember that when the utero-sacral ligaments are short the uterus becomes elevated in the pelvis from one to two centimeters and the cervix points towards the vaginal outlet, thus producing what is called an abnormal anti-flexion.

The prognosis is bad for the patients' well being if they have allowed themselves to go on for years. Semi-invalidism is a common result. Operation and treatment offer good and satisfactory results. Pregnancy or repeated pregnancies offer an excellent chance for cure.

The treatments in the hands of the writer were of two kinds: Those of a minor degree, and suffering little, were directed to abandon tight dresses and, if the abdomen was at all prominent, to wear a light abdominal supporter. They are also told to use douches of hot water in the knee-chest posture.

In the severer cases, with one exception, the writer has suggested a thorough stretching of the short utero-sacral or broad ligament under complete anesthesia. Complete anesthesia with thorough relaxation is absolutely necessary. After stretching the ligaments until the uterus is freely movable (not at all times an easy piece of work), the cervix is dilated to a No. 36 French sound. The uterus is now curetted and irrigated with a solution of mercuric bichloride, 1-5,000, and a glass plug of No. 33 French introduced.

The cervix is now held well under the pubes and the cul-de-sac of Douglas packed with iodoform gauze, the glass plug acting as a fulcrum for the gauze. After three days the gauze is removed and the vagina repacked and all is removed in six days. The patient is now told to resume her douches in the knee-chest posture for two months longer.

The result of this treatment is usually a good one, and I have never seen any harm result.

Exceptions occur now and then, and a repetition of the operation has been advised and carried out in a half-dozen cases. I am unable to say what number of cases received no benefit, but

TABLE OF 139 CASES OF LATERAL DISPLACEMENTS THAT CAME UNDER OPERATIVE TREATMENT.

	SINGLE	MARRIED	TOTAL
	91	48	139
Lateral position.....	1	0	1
Left lateral position antiflexion,....	1	0	1
Right lateral version.....	1	0	1
Right flexion.....	0	1	1
Right lateral position laceration of the cervix.....	0	1	1
Right lateral position.....	1	1	2
Left lateral position.....	4	3	7
Retro and lateral (?) displacement..	1	0	1
Retro-right lateral position and retroversion.....	1	0	1
Retroposition left lateral antiflexion	2	1	3
Retroposition laceration of the cervix	0	3	3
Retroposition and laceration of the perineum.....	0	1	1
Retroposition and retroversion.....	1	1	2
Retroposition and retroflexion.....	3	1	4
Retroposition, retroversion and antiflexion.....	2	0	2
Retroposition and to the left.....	6	3	9
Retroposition and to the right.....	11	3	14
Retroposition stricture of os internum.....	4	2	6
Retroposition, antiflexion of body and cervix.....	15	4	19
Retroposition.....	37	23	60

I am fully confident that the so-called congenital cases, with sensitive spines, had little to hope for.

In two cases of complete invalidism, extirpation of the uterus has been suggested and accepted after months of hospital treatment failed. They are both well and have remained so for three years, both earning their living by their hands' work.

Current Literature, *N. Y. Med. Jour.* and *Phila. Med. Jour.*, for July 11, 1903, quoted Le Gendre in the treatment of migraine in adults. Le Gendre advises good nourishment, the avoidance of excesses of all kinds and abstinence from over work. Antipyrine is recommended for the pain, or bromides, or caffeine, or a combination of these. Le Gendre, speaking of the manifold causation of this condition, states that other sources of headache in adults are syphilis, lead poisoning and functional disturbances, especially of the liver. Intracranial growths may be the causative factor. Headaches in elderly persons, not classifiable are best treated by sedative drugs and by a change of surroundings.

A CASE OF FRACTURE OF THE SKULL WITH A VERY PROMPT EPILEPTIC SEQUENCE.

BY CALVIN F. BARBER, M.D.,
Surgeon to Kings County Hospital.

IT has been my pleasure from time to time during the past few years to report to the readers of the JOURNAL my experience in operations upon the skull and contents, viz.: Acute conditions, which from the gravity of the injury demanded immediate operation; Chronic conditions, those for which operation was performed to remove or explore or relieve. Many of the cases, especially fractures of the vault of the cranium, are but of ordinary interest and therefore are hardly worth referring to; the contrary is true in some of the extreme cases—cases which at the time of operation are so absolutely hopeless that many would hesitate to operate at all, and it is to encourage operative measures in just such instances that I have reported previous cases and would now add another to the list.

Where depression, comminution and at times compounding exist, the removal of fragments and a general cleansing of the wound can do but good. An anesthetic is very often not necessary; but may become so as the operation proceeds, pressure being removed; nor should there be any hesitancy owing to the fact that a large or small area is not going to be replaced by bone. The replacing of bone removed from the skull or the substitution of a foreign material is of small importance in comparison to the relief afforded by the removal of depressed or fractured fragments. As a matter of fact it is quite as difficult to penetrate a well healed scalp wound as it is to clear away some bone. The dura being in good condition or well stitched, if severed, either by accident or intentionally, affords good and sufficient protection to the underlying brain. This, reinforced by a firm cicatrix in the scalp, a good cicatrix in my experience being much firmer and thicker than the original scalp, makes ample protection to the contents of the skull.

There is to my mind too much stress laid upon the importance of replacing fragments or trephined buttons. Many times where attempts to carry out this idea have been practiced the surgeon has had much time to regret his venture, through the long weeks of necessary dressing, due to necrosed bone. Where a Stillwagen trephine is used in an absolutely clean case a bone and scalp flap being removed at once, the chances of successful replacing are quite favorable, but

even in such conditions we are sometimes troubled with sinuses from death of the edges of the bone flap.

Such work is not to be looked for in cases to which I allude. You have many fragments to start with as a rule, assuming all shapes and sizes, some subdural. It is in these extreme cases that I would encourage action and urge the non-consideration of replacing bone. As an example of extensive bone removal from skull I would refer the reader to a case reported by me in this JOURNAL, November, 1902. In this case I am able to report a continued improvement, having seen the patient only a few days ago (*viz.*, July 10, 1903).

Adhesions, if they do occur, are not, as a rule, between the dura and the pia; quite frequently they do become firm between the dura and scalp. In a large number of cases I have yet to note any post-operative ill effects from these conditions. We have, as is well known, a class of cases where the removal of bone is a great advantage, where internal pressure is to be relieved, drainage established or, after an explorative craniotomy, where a non-removable brain tumor has been found. In Jacksonian epilepsy its permanent removal is, in many cases, of lasting benefit.

It was not my intention to speak at such length upon this subject, but possibly the review will not be out of place.

The case which bears upon the matter just discussed is that of a little boy, aged 10 years, who fell from a ladder into an excavation about ten feet in depth, striking upon his head. By the time he was reached by the ambulance surgeon, who, by the way, was close at hand, an extensive hematoma had formed at the junction of the hair line and the forehead. The eyelid of the right side was infiltrated with blood, the lid closed. In the right temporal region another bloody tumor quickly appeared. The nasal bones were broken. Much pain was excited by pressure over the glabella. Patient rapidly became stupid. There was no wound of soft parts.

No localizing symptoms being present, but the rapidly increasing stupor with the marked hematomas, we were led, with fair assurance, to a diagnosis of fracture. An incision through both tumors and a clearing away of a mass of blood quickly revealed a fracture of the frontal bone, which, after exploration, was found to run from temporal to temporal through frontal eminences also into right orbit and backward in the parietal bone of right side. Over orbital notch of right side was a comminuted area of bone with much depression. Brain substance was exuding from

this point and bleeding was free. The bleeding arrested, it was found after removal of comminuted particles that the depression seemed to extend throughout the fracture, necessitating the free use of rongeur. Quite a quantity of brain tissue escaped from right frontal lobe. The dura had been torn by sharp particles of bone. This was repaired with catgut sutures.

The entire roof of the right orbit was so depressed and loose that it necessitated the drawing of the skin of forehead over it to hold it in place. At the completion of the operation we had a furrow from one side of frontal bone to the other running through both frontal eminences, the longitudinal sinus exposed, a furrow running back from orbit to and into the right parietal bone, the roof of right orbit intact, but movable and somewhat depressed.

The boy's condition improved after the depressed fragments were removed and at the termination of the operation was in far better shape than at its commencement. He remained in the hospital thirty-eight days, during which time he continued to improve in every particular. He showed absolutely no signs of mental or cerebral disturbance. As in all these cases we asked for the patient's return in a reasonable time for observation. Complying with this request we learn that the boy has had two "spells." Upon close questioning I am inclined to believe that the attacks are *petite mal* of epilepsy. This is quite soon for such a condition to develop, being only about two months after the accident. Outbreaks of violent temper are of frequent occurrence, while previous to the accident he was a child of mild temperament.

From a large list of cases operated upon for fracture of the skull, both mild and severe, this is the only one, thus far, in which I am able to trace any history of epilepsy. I have never experienced such a severe traumatism of the frontal region as this case presented and have the patient survive. With such an extensive fracture, stellate at one point and a loss of brain substance, with extreme traumatism to head in general, a sequence of epilepsy is not surprising.

S. Phillips contributes an original article to *The Lancet* (June 27, 1903) on the Diagnosis of the Cause of Jaundice. He states that in two of his twelve cases pancreatic cancer as well as biliary calculi were found post-mortem. "A previous history of gall-stones therefore in no way militates against the diagnosis of pancreatic cancer as a cause of jaundice."

SOME OBSERVATIONS ON THE TREATMENT OF NEURASTHENIA AT THE DISPENSARY CLINIC.

BY CECIL MACCOY, M.D.,

Assistant Neurologist, Kings County Hospital; Brooklyn Eye and Ear Hospital; Bushwick and East Brooklyn Dispensary, Brooklyn, N. Y.

Read before the Brooklyn Neurological Society, April 30, 1903.

IN inviting your attention to a few brief considerations on the treatment of neurasthenia at the dispensary clinic, it is not my intention to present anything remarkably new, but rather to provoke a discussion of a subject which has long been a matter of keen interest to myself. Therefore, you may at once assume that I come here to give little, but to receive much.

In many instances the conception of neurasthenia, in the mind of the general practitioner, is that they have to deal with an ordinary functional neurosis, and the differential diagnosis between hysteria, neurasthenia and hypochondria is too often left unmade. That this fact is unfortunate is shown by the number of nervous invalids who wander from one doctor to another, only finally to fall into the hands of some charlatan or quack.

In the confused grouping of symptoms presented by the neurasthenic patient, the startling point is the recognition of what is known as the fatigue symptom. This may be either mental, motor, or it may be in the sensory sphere. This symptom is sometimes called irritable weakness, and in it we have the phenomenon of exhaustion appearing after an inadequate degree of exertion, in which respect there has been a marked change in the condition of the patient. Sufferers from neurasthenia who are allowed to tell their own story, frequently voluntarily describe this symptom and in other cases it can be brought out by direct questioning.

Some of the symptoms of fatigue commonly seen at the clinic are the mental sluggishness, loss of interest in occupation and dread to assume responsibility. In the motor sphere we note tremor and muscular weakness, palpitation of the heart following slight exertion. The sensory parasthesias, such as headache, pressure, band about scalp, creeping sensations in the skin, occipital pain, discomfort in eye balls, blurred vision, sensitiveness to noise, all seem to be worse after exertion.

A clear conception of the relation of this fatigue symptom will at once enable one to differentiate between hysteria, hypochondria and neu-

raasthenia, although these types of nervous disease are sometimes interwoven.

In pure hysteria the fatigue symptom is never present. In hypochondria we always get a picture of mental disease. It is an incomplete insanity and the delusions relate to the patient's health.

The fatigue symptoms must not be confused with the natural anxiety of a neurasthenic and the possible fear that he may be developing some grave disorder. In the neurasthenic it is found that the morbid phenomena and introspection are based on visceral sensations which are simply misinterpreted, while the hypochondriac forms his delusions out of whole cloth.

In hysteria we have the paralysis—the characteristic anesthetics—the disturbances of retinal color perception or the peculiar paroxysmal character of the disorder. The pure types of neurasthenics are never paroxysmal, but quite constant and continuous.

The number of divisions of neurasthenia which have been attempted seem quite profitless. The clearest and most important distinction is to learn whether the disease is congenital or acquired. Heredity plays a most important part in neurasthenia. The hereditary weakness among ancestors may have shown itself not alone in neurasthenia as we now understand it, but in one or more of the neuropathic states, such as epilepsy, hysteria, alcoholism, insanity or some of the various organic paralyses. When the disease is hereditary it may develop on the slightest cause, causes that, in the strong, would be powerless for evil and in many such cases neurasthenia seems to develop absolutely without cause and at any age.

On the contrary, acquired neurasthenia seldom develops much before twenty-five, and frequently the first symptoms appear long after that age. Neurotic instability of the hereditary is, therefore, one of the most important and frequent elements entering into the etiology and prognosis of neurasthenia.

The key to the diagnosis and treatment of neurasthenia is in the fact that the entire individual is affected—there is a weakness of all the functions, mental, physical and moral. But the deficit conditions are never absolute. We have always something to work upon and therein consists the important point, that neurasthenia is a manageable condition and also that neurasthenics are manageable individuals.

Every case cannot be treated in the same way, but the same general principles must prevail. In

a large dispensary service for nervous diseases one always sees patients with neurasthenia for whom the treatment must be almost entirely by drugs. A number of these patients are greatly benefited and recover entirely with no other treatment than medicines and some change as to their mode of life in regard to food and habits.

The underlying defect in all cases of neurasthenia, except those congenital neuropaths for whom we accomplish but little, is a nutritional disturbance. The patient's confidence, which is often so difficult to secure in the physician's private office, among the more well-to-do classes of neurasthenics, is often in the case of the dispensary classes, easily won. This is accomplished many times while the patient waits his turn on the benches outside the doctor's room, where old and new cases sit huddled together reciting to one another the marvelous benefits and cures made by the doctor. Again, patients are constantly being dismissed from the doctor's room after having had an encouraging talk with the one in charge. These patients are made more hopeful each visit and the new and old patients in the waiting-room note the brightened expression of the one who has seen the doctor as carefully as they await their own turn.

These points may appear of small moment to some, but as a result in the treatment of over 100 cases of neurasthenia I am led to believe that the most powerful therapeutic in the hands of the physician who would treat functional nervous diseases successfully is the hopeful suggestion and faith which he must instill in the patient on the first or second visit to the clinic.

After questioning a new patient in regard to his sickness, its duration, probable cause, general symptoms, etc., and noting the same in the history book, and, having made a diagnosis of neurasthenia, your patient will frequently ask you the pointed question: "Can I get well?" or "Can you cure me?" Then is the time for a positive assertion that they can recover, but this assertion should be qualified by the statement that much depends upon the way that they follow out your instructions.

The insomnia and the constipated condition of the bowels appear to be the first symptoms to attack and when you have explained to the patient the value of fresh air, sun-light, pure drinking water, the necessity of a daily sponge bath and the action of the medicines you are giving him, you have made the most important step in the treatment of neurasthenia at the clinic.

On a second visit to the clinic the patient al-

most invariably reports improvement. The simple sedatives have done much for his sleep, the intestinal canal has been cleaned daily, and a regularity of life has become more or less established. The headache is improved—the vague pains have not been so constant—he is not so irritable. Your patient wonders at the outcome of a week's treatment. If you are not experienced in the treatment of these cases, if you do not understand that these neurasthenics must come to you for weeks, possibly months—you will indeed fail to treat them successfully. During their second visit the reason for their improvement is explained to them, and if you have gained their confidence you may commence to make more complete the educational management which has begun so well. This slow and necessarily tedious education, for you may encounter many setbacks, plays a more important part in the treatment than is generally believed.

In hysteria and neurasthenia especially, this is true. Whatever may be said of the pathological conditions underlying the neurons the problem of treatment is quite as much psychological as pathological.

I am not to be understood as underrating the importance of nutrition and drugs, but to give more importance to the psychic treatment. The neurasthenic is unduly conscious of bodily impressions.

The patient must be made to understand the significance of each rule laid down and to watch the result. He should be requested to discuss his symptoms with no one but his doctor—in this way counter suggestions may be avoided. A prescription is given each week with directions to take a glass of water with each dose. This order for medicine seems to be quite essential in the treatment of all classes of patients in the clinic or at the office, if you wish to hold your patient. Each physician may choose his own favorite sedative.

At Dr. Brush's clinic we have found no more valuable drug than the bromide given in 10 to 15 grain doses together with a few drops of Fowler's solution in plenty of water after meals. As a vehicle we use gentian, cardamon, essence of pepsin or lactopeptin. There is little or no question as to the value of electricity in the treatment of nervous diseases. Its usefulness in the treatment of neurasthenia at the clinic I am unable to estimate, but the large number of functional neuroses who recover without its use argues that it is not as important a therapeutic agent as some electrical enthusiasts would urge.

The sponge baths at bed-time, of luke-warm water, are not alone from the hygienic point of view valuable—they aid materially in inducing sleep, and are, too, within the means of every clinic patient. The improvement in the condition of these neurasthenics which immediately follows the use of an increased amount of water, both internally and externally, often reforms their whole method of life.

The food which the neurasthenic should take varies according to the individual, and they are advised to take only such food as agrees with them. Tea, coffee and alcohol, unless it be a small amount of beer, are forbidden, and hot water, cocoa, milk are substituted. The mental treatment of the neurasthenic is quite as necessary as are the hygienic rules you teach him to follow. The moral support you afford the patient by telling him that he is improved this week—that he looks brighter and stronger—that he will feel more improved as the treatment continues—that he will soon be well—is more noticeable each week. You will have an occasional setback in his improvement. When this occurs you should never allow the patient to see that it worries you—tell him it is the true course of the disease—compare his general condition to-day with that of three weeks ago. Prove that he has only two symptoms to bother him now, where he did have twenty. You will convince him. This attention and kindly treatment rarely fails and your renewed suggestions of positive recovery sink deeper within him.

Neurasthenics are peculiarly liable to suggestion and the physician who fails to avail himself of its use drops one of the most important articles out of his list of remedial agencies. The history of quackery is full of lessons as to the efficacy of faith as the prime agent in healing.

W. P. Spratling, in an article on Epileptic Aura, published in *Med. News* for July 18, 1903, says that his experience leads him to believe that the more sudden, severe and complete the epileptic attack, the less likely it is to be preceded by an aura, while the further the convulsion departs from the classical type, the more common and distinct the aura; and while at present but little use of these important initial manifestations of the epileptic state is made, they justify close and analytic study as contributing possible guides to the seat of the disease.

DOES LODGE DOCTORING PAY?

BY ROBERT E. COUGHLIN, M.D.,
Brooklyn, N. Y.

Read at a meeting of the Norwegian Hospital Alumni Society, June 10, 1903.

Does lodge work pay? This is a question that has interested medical men for a long time past.

The question may be viewed from four standpoints, viz.: First, as regards the physician himself and his private interests; second, as regards the lodge or lodges employing a physician; third, as regards physicians who do not perform lodge work, and fourth, concerning patients who do not belong to any sick benefit lodges or societies.

Naturally, as viewed from the standpoint of the physician himself and his private interests, we are more particularly interested in this phase of the subject. At the same time, the lodge doctor should not lose sight of other interests concerned, namely, a regard to any injury or benefit which his colleagues and his private patients may derive by reason of his doing lodge work.

At first sight one would be led to believe that lodge physicians surely benefit themselves by contracting to perform services at a given rate per capita. We will try and decide if this be the case.

Whether or not the lodges are benefited by such a contract and whether medical men outside of lodges are injured or benefited we shall also try and determine.

It is also proper to consider in this discussion the benefits or injuries which may be experienced by the private patients of the "lodge doctor" who are not members of a "lodge."

The experience of one practitioner may be cited.

A physician during his second year in practice was approached by a committee representing a sick-benefit association. He was told that the members had decided to ask him to become their "lodge doctor" at the rate which generally prevails, namely, one dollar from each member per year. This was to be his fee whether members required treatment or not. The membership numbered about one hundred men. The physician accepted the proposition. At the end of the first quarter a serious strike occurred, which concerned all the members of the order, with the result that the society went out of existence. During this time the medical attendant saw and treated one office case. Nevertheless, his salary of twenty-five dollars was paid him at the end of the quarter. A few years later the same physician was asked to become a candidate for "lodge doctor"

in another well-organized and long-established society. This particular society, it was alleged, had had a great deal of trouble with their previous medical attendants. By some it was claimed that each and every doctor had been negligent in his duties to the society, while others claimed emphatically that this was not so. The physician accepted the nomination and was elected. He had been told by his predecessors that the "lodge work" had paid them about twenty-five cents a call. This he found to be the case, as during his first year he received an average of twenty-seven cents per office and outside visit. After serving a second term, a period of six months, he decided to resign, but the society declined to accept the resignation, demanding his reason for resigning. He stated it as his position that too little money was received for the services performed. Upon being asked to name a fair compensation he stated that he desired his salary doubled and that new members be compelled to pay an additional entrance examination fee of one dollar. His wishes were complied with. Under this new rule the rate per visit, office and outside, went up to sixty-two and one-half cents for the second year. At the end of this year he was elected for a third term, with the result that the position paid him during this period eighty-eight and one-half cents per office and outside visit. This was under the new rule, namely, double the ordinary fee. He was again elected for a fourth term, and during this year the position paid him about one dollar per office and outside visit. At this time discontent became manifested among a number of the members, caused as they said by a constantly reducing reserve fund, due to the large amount of money which the "lodge doctor" received. It was then decided to ask the "lodge doctor" to reduce his salary twenty-five per cent., which he refused to do. Another physician was consequently sought, who was willing to take the position at the lower salary. Thus ended one physician's connection with lodges. During the four years of his service he gave general satisfaction, and when he was replaced he was told that it was only on account of the economical side of the question.

Another physician contracted to attend the members of a sick-benefit association attached to a large factory, at one dollar per member a year. The membership consisted of about three hundred and sixty persons, old and young, male and female, black and white, foreign and native born. This position has paid the "lodge doctor" about seventy-five and one-half cents per office and out-

side visit for the first year and seventy-seven and one-quarter cents for the second year. This position he still holds, but there is a dissatisfied feeling among some of the members that the "lodge doctor" is growing rich from this particular society.

In regard to the physician himself and his private interests, a few words may be said. We might compare him with a dispensary or hospital physician who agrees to attend cases in the dispensary or hospital for charity's sake, with the difference that the lodge physician is paid for his services, while the dispensary or hospital doctor receives nothing in return. Both may promote their interests through the work they have decided to perform, or on the contrary may ruin their chances in the same way. The dispensary or hospital doctor accepts the position mainly for practical experience.

One may also take the position of lodge doctor for the same reason. Certainly, he may obtain clinical bedside experience in the same manner as the physician attached to a hospital. The honor of being attached to a hospital is greater than being physician of a lodge, in fact, the lodge doctor is, as a rule, looked down upon by most of the members of the medical profession, and justly so, when he performs the work for merely the money's sake. In actual experience I believe he stands on a par with the hospital attendant, with the point in his favor that he demands some remuneration for his work. I believe that as regards his interests in relation to obtaining experience he does benefit himself.

As regards any benefit he may derive through being a lodge doctor, this is a mooted question. Certainly he becomes acquainted with people in the neighborhood in which he resides, but he is looked upon as the lodge doctor, and, in consequence is supposed to be inferior to his fellow practitioners. If he be introduced into members' families, this same question stares him in the face. He is also expected to perform services to members' families at one-half the regular fee, which curtails his income.

If he performs good work and shows by his interest in his patients that he does his work in a thorough manner and for the benefit of humanity and not primarily for the monetary consideration, I believe he can make a reputation for himself which will help him in after years. The physician who, as a "lodge doctor," possesses the reputation of being careless and without skill, is doomed to derive but little benefit from lodge work. He may be asked to attend members for

trivial ailments; but when a case becomes serious the regular family physician is called in, and the lodge doctor is considered but in the light of a medical clerk for the signing of sick-benefit certificates.

Why is it that the hospital physician is looked upon with favor by the profession and the laity, while the lodge doctor is looked down upon by both? The reason is that the former is careful, conscientious and painstaking, as a rule, in handling the case before him, especially regarding the making of a correct diagnosis. In other words he is benefiting himself, as well as the patient, in a thoroughly scientific way. He looks for no remuneration, nor does he receive any, from the patient, except inasmuch as he may learn something of benefit to himself.

The lodge doctor accepts his position for the small pecuniary consideration, which is, as he calls it, a steady income. He is inclined to be careless in his work and negligent in his duties, for this reason. The benefit he may derive from his experience as a medical attendant he places at a minimum, for the reason that he is not called in in serious cases, and patients with simple ailments, who are clamoring for sick benefit, constantly appear before him. Altogether the position of lodge doctor is anything but an enviable one, and while he makes acquaintances by reason of his position, yet he is regarded always as "the lodge doctor," and this does not add to his reputation. If he be a good, careful practitioner of medicine and anxious to succeed, he may, by conscientious work, make himself felt, in spite of all this. Certainly, if he wishes to study a case particularly, he may do so without causing his patient to feel that he is making unnecessary visits in order to run up a bill.

The advantages enjoyed by the lodge doctor seem to be:

First, he has a steady income from his lodge work, whether he is otherwise busy or the reverse. Second, he becomes acquainted throughout the lodge and section where he resides. Third, he may study special cases without being criticized for making frequent observations. Fourth, he may, by good, careful, conscientious practice, benefit and add to his reputation.

The disadvantages he has to contend with are: Small remuneration for services rendered, the name he has to bear as a "lodge doctor," the fact that he is asked to treat trivial ailments, and his subordinate position as a consequence, and, finally, the criticism he is subjected to in regard to the granting or not granting of sick-benefit cer-

tificates. To these might be added the liability of becoming careless and negligent in his diagnosis and treatment of disease, because of these disadvantages. A final possibility is that his private practice may be cut into by his private patients joining the lodge he attends, and thereby being able to benefit in the matter of lessened fees.

As regards the lodge, one may at once arrive at the conclusion that the lodge is always the gainer. By hiring physicians who contract to take care of their sick for so much per head they gain according to the amount of labor performed. We may therefore state that the lodge or lodges hiring lodge physicians are the gainers by the contract system at present in vogue.

Another phase of the question to be considered is the interests of colleagues who as a majority do not perform lodge work. Many of these physicians have patients belonging to families some of the members of which affiliate with sick-benefit societies. These will often call in the "lodge doctor," who is not benefited at all, but with a consequent loss of legitimate fees to the family physician. Here is where the lodge doctor does real harm to the profession. Sometimes the family physician is not interfered with, he being called in and himself furnishing a sick-benefit certificate weekly, which is later countersigned by the "lodge doctor." An instance might be cited where a family physician had a poor patient who joined a society, and by this means was relieved of a positive annoyance. In this instance the family physician was benefited by the working of a lodge contract system. Taking it all in all, however, our colleagues who do not perform lodge work are injured by the workings of the "benefit" lodges.

Dr. Magnus A. Tate in a recent article stated: "Contract doctors are governed by but one object, which is self. Watch them through life and see if this diagnosis is not correct. They are making medical paupers out of thousands and doing irreparable harm. It is no wonder that insurance companies have inaugurated their liberal method of dealing with physicians on what they term business methods."

In reference to the lodge doctor's patients who are not members of lodges something should be said. It might well be asked: Is it fair for the lodge physician to contract to perform services for a lodge at a cheap rate and charge his own patients in private work the regular fee? Logically one would be led to answer in the negative. When it comes to doing a favor for any one, we should favor those who help us most. This the

lodge doctor does not do in the case of his own private patients.

Frequently lodge members will say to a lodge doctor's private patients: "I can have your doctor's services any time I want them and it will not cost me anything either." This is certainly not fair to our private patients, and we are sure to lose good and well-meaning patients on this account. We should look out for our private patients' interests always. They are those one must depend on for his success. To perform contract doctoring is to invite the criticism and reproach of our private patients and their families, because they will often reason that they are not being fairly dealt with, inasmuch as their neighbor next door, who belongs to a lodge, may obtain our services for little or nothing, while our private patients are obliged to pay the regular fee for the same services. If for no other reason, in justice to our private patients, we should therefore not perform lodge work. It seems fair to conclude that contract service in medicine and surgery is not desirable from any point of view.

SURGICAL TREATMENT OF CONGENITAL CLEFTS OF THE PALATE IN INFANTS.

BY TRUMAN W. BROPHY, M.D., D.D.S., LL.D.,
Chicago, Ill.

THE TIME IN LIFE MOST FAVORABLE FOR OPERATIONS.

I am well aware that many eminent surgeons do not favor operations in early infancy for the cure of cleft-palate. I am also aware that few, comparatively, are familiar with the methods that I have devised and practice, but it is gratifying to realize that many who formerly questioned my method are now most enthusiastic advocates of it. The question of early operations has with me passed the experimental stage; an experience extending over a period of twenty years with a careful examination of patients upon whom I have operated is satisfactory evidence that the most desirable time in life to operate for congenital cleft of the hard palate is within five months of birth, preferably within three months, and this conclusion is based upon the results of clinical experience—some of my most satisfactory results were obtained in infants from ten days to three weeks of age. The operation is made by forcing the maxillary bones together, bringing the edges of the fissure in contact and securing union.

Among the reasons why I believe early operations are most desirable are:

1. Surgical shock is less because the nervous system of a young child is not well developed and it is not therefore capable of receiving the same impressions that it would later in life, besides young children usually react better. Hemorrhage is very slight, moreover, all mental impressions are eliminated—we all know that alarm and dread are amongst the most powerful factors in producing shock.

The operation should be made upon the palate before that upon the lip. It is a great mistake to commence at the oral opening and partially close the only aperture through which a subsequent palate operation must be made. The surgeon needs all the space that can be secured, which is none too much in a small child. The lip operation is comparatively simple and trivial, and it can be performed at any time; but the palate operation is made much more difficult if prior to that the lip has been closed. Should the intermaxillary bones protrude, they must not be removed, but should be carried back into their normal position.

2. Before the bones are fully calcified they may be bent or moved without fracture. Bone at birth is about one-half organic matter, hence the injury is really less in closing a cleft than it would be if the calcification were more complete.

3. If the muscles are very early brought into action they develop instead of atrophy and hence a good velum is secured with plenty of tissue, whereas if the operation is undertaken later in life after the parts are shrunken through non-use they can rarely be made to subserve the same purpose that organs which develop through natural employment can be made to do. It is well-known that muscular tissue is more perfectly developed through action, in instances of cleft palate, none of the muscles of the velum can be normally employed when the parts are not united and hence they remain in an immature condition through life. By operating at a very early age, they are at once brought into use and their development is proportioned to that of other tissues.

4. When the palatal processes of the maxillæ are united, the development of the bones of the alveolar processes of the upper jaw assumes a form nearly or quite normal and when the teeth are erupted they will properly occlude with the lower ones or nearly so.

The method here described enables us to restore in early infancy the normal relations of the superior maxilla and consequently the proper re-

lation of the upper to the lower maxillary bone. In patients not having sufficient bony tissue to enable me to close the cleft by this operation, without contracting the arch I found rather to my surprise that as time went on the bones developed and the arch spread until when the upper teeth were erupted they nearly or quite occupied the normal relation to the lower ones.

5. Following early operations there is much less deformity for all the tissues, bony as well as soft, develop naturally and according to accepted types. When the operation is postponed for a few years, it is very difficult to secure such results.

6. When the operation is made in early infancy the tissues unite, the nasal accent does not develop and speech is normal when the time comes for learning to articulate. If the operation is not made until faulty habits of speech are acquired, it is with difficulty that they can be overcome, even though the muscular parts be made sufficient.

Closure of Wounds by M. F. Porter (*The Jour. Amer. Med. Ass.*, July 25, 1903). Dr. Porter ably defends the use of adhesive plaster instead of sutures.

He emphasizes the following points:

1. The use of sutures should be avoided save where necessity demands their use. Many wounds, in which sutures are now commonly used, may be coapted more perfectly, more speedily and more safely without the use of sutures.

2. Tension and moisture are the only conditions making sutures necessary.

3. When sutures are necessary, buried absorbable sutures should be used in all cases where there is no infection.

4. The necessity for drainage does not contraindicate the use of adhesive plaster for purposes of coaptation.

5. It is doubtful if non-absorbable suture material should ever be used with a view to its remaining permanently.

6. Non-absorbable sutures are not necessary nor advisable save in intestinal work and in the presence of sepsis.

7. In those cases in which non-absorbable sutures are necessary that method of applying them should be chosen which will subject the tissues to the least possible trauma, produce the fewest possible avenues for infection through the skin, and permit of their being removed when they have fulfilled their mission.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, May 19, 1903.

The President, CHARLES N. COX, M.D., in the Chair.

STEREOPTICON DEMONSTRATION OF THE SURGICAL TREATMENT OF CONGENITAL CLEFT PALATE, WITH EXHIBITION OF PATIENTS.

BY TRUMAN W. BROPHY, M.D., D.D.S., LL.D.,
OF CHICAGO, ILL.

DR. T. W. BROPHY: I desire to assure you that I fully appreciate the very high compliment that you have paid me by inviting me to be present here this evening to speak upon the subject that has been announced. I consider it a very great honor, because I realize that I am in the presence of members of the profession, who have contributed so much to bring it to the high plane it occupies, and to a place that is looked upon by members of our profession throughout the world so high in medical circles.

Before entering upon the discussion of the subject that has been announced, I desire first to bring before you some patients who have kindly consented to come here this evening, that you may have an opportunity to see the results of operations that I have performed. Naturally it would be the proper thing to exhibit the patients after I have explained the methods that have been employed to secure the results you will observe, but since the parents of the children have courteously come here at my request and the children are quite young, I feel that it would be asking rather too much to delay them to the close of the meeting. I am sure you will all appreciate the fact that these people have taken a great deal of pains in coming here, to exhibit to you the results of my work.

LANTERN DEMONSTRATION.

1. The pictures we have before you now are made from casts of a child's mouth. They are accurate in every detail, the measurements have been made with the greatest care. The object of these pictures is to show you that the upper jaw of an infant who has a cleft palate is broader than the lower jaw. The difference in the breadth of the upper jaw as compared with the lower jaw, as you see by the sections placed before you, is the difference between the edges of the cleft, so the theory that has been so long accepted, that a

cleft palate is the result of incomplete development of the tissues which enter into its formation is erroneous. There is an abundance of tissue in this case to form a perfect palate, but unfortunately during the development of the child the edges of the bones failed to unite from various causes that have been assigned, but principally perhaps through hereditary influences, or through defect in the processes of nutrition during the early months of gestation. As you see, the upper jaw here is much broader than the lower.

Now then, if we are able to bring the edges of the fissure into contact and effect a union, we will be able to reduce the upper jaw to its proper breadth and to bring it later in normal relation with the lower jaw. Some of you may ask me why it is the upper jaw is spread to such an extent. It is due to the fact that having failed to unite within the first three, four or five months of intrauterine life, the lower jaw, as soon as the muscles of mastication become active, brings pressure upon the upper jaw and upon the inclined plane, which forms the hard palate. The lower jaw is brought to bear upon the upper and acts as a wedge, so that every time the child forces the lower against the upper jaw, the lower jaw rests upon an inclined plane in this fashion (illustrating) and forces the hemispheres of the bone further and further apart.

2. Here you will see in the adult the different things that I have explained in the description of the jaws of the infant. The premaxillary bones protrude, there is a double fissure of the lip, a cleft palate, with the bones of the upper jaw separated widely, which occur, I believe, by action of the lower jaw in contact with the palato-alveolar inclined planes of the upper jaw in fetal life.

3. Here we have upon the screen two pictures. The one at your left shows a vertical section of the face of an infantile cadaver which had a cleft palate. Unfortunately the gentleman who made this preparation (which has been well done) by a process of freezing and then making the section, failed to draw the tongue downward, and fasten it there before the freezing process was begun. As it is the tongue lies up in the fissure of the palate, so it is somewhat misleading, because it does not show the breadth of the fissure as clearly as it would if the tongue had been drawn downwards. You will observe in this case that the lower jaw is narrower than the upper by a great deal, as it is in the first picture I exhibited to you. When the lower jaw comes up it strikes upon the inclined plane of the upper, and by so doing forces the bones further and further apart.

What would be the logical conclusion in a case like this, and what would be the decision of the surgeon where a fissure of this character existed in any other part of the body, and if the relations of some other part caused that fissure to become wider and wider? The very first impulse of the surgeon would be to adopt a plan, by which the fissure would be closed, and not wait a period of time to accomplish this end, but to do it at once, and so that is our management of these cases. We feel that our first duty is to bring these divided edges of the bones into contact and effect a union, so that the patient will go through life without being subject to this most conspicuous and distressing deformity. Keep in mind, if you please, the condition of the jaws in the abnormal specimen showing a cleft palate and compare them with the jaws normally developed.

4. Here we have a section showing the relation of the lower jaw to the upper in the normal specimen, made in precisely the same way by freezing the cadaver and making a vertical section, so as to show you not only the relation of the lower jaw to the upper, but to show you also, that in the normal specimen (we have here the normal air passages of the nose as compared with the extremely abnormal air passages in a cleft palate patient whose bones have been forced further out of the normal relation by action of the lower jaw); in other words, spread so wide that the nasal opening is perhaps four times broader than it normally would be. This specimen I regard as of inestimable value. I believe these pictures a sufficient argument in favor of bringing these bones into proximity in early infancy. They tell the story, so that words to convince you that such is the case would be, in my opinion, absolutely unnecessary, because the pictures were made by an expert anatomist and with the greatest of care. They are the only arguments required to show that the procedure of bringing these bones into contact in early infancy is rational, and it is an operation that I believe ultimately will be performed everywhere.

5. This picture is intended to show the extreme breadth of the air passages. Here again unfortunately the tongue has been permitted to fill up to a great extent the space, and in presenting these pictures I would be doing injustice to myself, and to the gentleman who so kindly furnished them to me, were I to omit mentioning the fact that Dr. Stone, of Boston, prepared these specimens, and wrote an article which appeared in the *Boston Medical Journal*, an article in which

he essayed to show that it was not expedient to approximate the bones in cases of this kind.

My attention was called to this article by one of your distinguished fellow practitioners, Dr. Fowler, of Brooklyn, and he asked me to read it. He gave me a copy of the *Journal*. I read it, and at once declared by the use of these pictures I would be able to better and more satisfactorily and in a more convincing manner establish the feasibility and the desirability of the operation, which I have devised, than by any and all other pictures and methods previously employed.

I want to call your attention particularly to the fact that we have in the normal cadaver in the relation of the walls of the nasal passages, lines almost, if not quite, parallel to each other, the vomer occupying the central position and the walls of the nasal passages merely paralleling the vomer. In this case you see, as I lay my pointer upon it, it forms a triangle, the base of which is downward, the apex upward. So if we pass sutures through these tissues, and put the bones in normal relation over the position of the triangle, we change it to a perpendicular position and bring the turbinated bones, the inner walls of the antrum and the external walls of the nares into proper relation with each other, instead of having this extensive broad space, which extends over the entire surface of the tongue.

6. You see here is a vertical section of the head of a normal cadaver. Keep in mind the nasal opening here. Here the walls of the nares parallel each other, instead of being extended out so as to form a triangle. The relation of the upper alveolar border of the bone to the lower alveolar border on normal, and the upper jaw is of the same breadth as the lower jaw.

7. This is a duplicate of one of the other pictures. In a case of this character if the sutures are carried through the bone, we have nothing to prevent the bending of the bone, because it is soft (nearly half is organic matter), and we are therefore able to carry the edges into proximity with each other. Only by putting a little pressure on these bones are we able to easily bend them, and then bring the alveolar borders nearer, instead of having them lapping out half an inch below the lower, bringing them so the alveolar borders of the upper will be in proper relation to the alveolar borders of the lower jaw.

8. Again we have a slide showing the relation of the upper to the lower jaw in a case of cleft palate in a young child. You will see the upper

jaw is greatly expanded. Here we have the upper and the lower in the case of a normal subject, and you see the relations of the jaws are as they should be.

9. This shows a cleft in a young child something like six or eight weeks old, showing the borders of the cleft and the conditions of the parts very clearly. The fissure in the lip in almost all children who have single hare lip accompanying cleft palate is on the left side. I saw one to-day in a hospital here in the city, which was on the right side, but the fissures in the lip occur in about 85 per cent. of the cases, in which they appear, on the left side. Why it is so, I do not know.

10. The next picture on the screen is that of the same child one week after operation. The parts are in proximity, as they were in the case of the little patient you saw here this evening.

11. This is the method employed in doing the operation upon the patient whose picture was just projected on the screen. Wire sutures are carried through the bones and in the center there are two sutures. The wire is bent and carried through as one, and then cut at the loop, making two, with one suture anteriorly, and one posteriorly. The edges of the tissues are freshened and the parts are carried together, and held there by means of the wire, being twisted upon the lead plates, and the parts are brought into contact, and show the condition which you see in the next picture.

12. In this drawing you will see the method of adjusting the wires from side to side through the substance of the bone above the palatal plates of the maxillary bones through to the opposite side. The black line represents the heavy lead plate. Pressure is made upon the sides, so as to bring the edges of the fissure into contact.

13. This shows the parts in proximity. In patients under three months of age, usually there is no difficulty in bringing the parts into contact by pressure alone, because the bones at that time of life are very soft, made up to a considerable extent of organic material. They are not highly calcified, they will bend under pressure and the parts can be brought together. But if the child has advanced to the age of five months (I think it unfortunate they are allowed to go that long), then it may become necessary after the plates have been put in position to carry a bistoury above the plates and divide the malar processes of the maxillary bones. When we have done that and made pressure, we find we can get the edges of the fissure in contact. We then twist the wires so as to hold the parts together until union

takes place. It is not generally necessary to make these incisions through the malar processes, except after the child has attained the age of six months. Ordinarily I would not advise the making of this operation after the child has passed the sixth month.

The reason why I advise operation in early infancy is because the child will not be disturbed to any very great extent. It will not stand the shock so well later in life for reasons that you recognize, i.e., that the nervous system is not well developed in a newborn babe. It will stand shocks that one six or eight months old can not stand, because of the more complete development of the nervous system at the latter period. Besides one reason these very young patients do well is we have no hemorrhage to speak of. Practically no hemorrhage occurs in the passage of the sutures, because we have no vessels divided. We simply pass the sutures through the substance of the bones, draw them out and fix them, and then when we approximate the edges, the hemorrhage, which is of a capillary character, ceases, and thereafter the patient does well. It is not deprived of a great amount of vitality by loss of blood.

14. This shows fairly well about the size of the antrum in a child 3 to 5 months old; in proportion to the rest of the bones, it is very small. Some gentlemen have asked me what is the effect on the antrum. In a newborn babe there is no antrum of consequence, and so we pay no attention to it whatever, and we find no evil results in hundreds of cases. Sometimes the teeth germs will be destroyed by the passage of the needles, but that is of little consequence compared with the very great benefits the child derives by having this deformity overcome before it recognizes it ever had a deformity.

15. The picture now on the screen shows the condition of the mouth of a child 14 years of age, upon whom I operated when it was ten days old. The patient is now about 16 years of age.

16. While in Kansas City last summer attending the meeting of the Mississippi Valley Medical Society, I was fortunate enough to meet Dr. Binney of that city, who, with Dr. Griffith, invited me to go to the hospital and do an operation. Having told me he had a skull showing a cleft palate, I said I would be very glad to see it. I saw the skull, and so pleased was I with the condition of the parts, that I asked him for a photograph, and here is one of the pictures.

Here you see the upper jaw is spread abnormally apart and both tuberosities turned out. There

is enough tissue to make a good hard palate, only the bones are separated. What would naturally be the first desire on the part of a surgeon in a case of this kind. The first impulse would be to bring these parts together, but we could not well do so in one so old. We might by dividing the malar processes of the bone, by fracturing the bones above, be able to approximate the edges, but it would be attended with a good deal of danger, the shock would be great, the disturbance of the vessels would be great, because we could not approximate the edges of the bones without absolute fracture, consequently we would not do it.

This skull enables us to, if possible, make stronger the argument in favor of moving the bones together in early infancy, so as to avoid a condition like this later in life.

This is another view of the same skull showing the pitiable aspect of it, with an abundance of bone, sufficient to form a good palate, but the bones are separated. The tuberosities are inclined outward, the teeth are directed toward the cheek. You see an abundance of bone here to form a hard palate, but the parts have been separated. This is not always the case. Now and then we meet with a case in which there is not sufficient quantity of tissue to form a hard palate, but these cases are extremely rare.

18. Here I have before you a picture which shows models which have been accurately made, presenting a condition such as I have described—a cleft palate in a boy 11 years of age. The relation of the upper teeth to the lower, as you see, shows that the upper teeth telescope over all the lower teeth. The upper jaw was so broad that the child could not by any possible arrangement bring the lower teeth in contact with the upper ones.

Here it shows a section of these casts through the median line and the relation of the lower teeth to the upper; in fact there was no direct contact. It was not possible by any arrangement of the edges to bring the lower teeth in contact with the upper, except at one point an upper incisor could be brought in contact with a lower one. It was not possible to bring the cutting edges in contact with the lower except in a single instance. The boy was so annoyed by the cutting of the mucous membrane, which had gone on to a point where the teeth had actually passed through the gums, that he sought some help.

It had been suggested to have the teeth removed, but by a gradual process of drawing the teeth of the upper jaw together with the bone

itself, we were able to bring the molar teeth in further to fit into the lower ones, but the time had passed when it was expedient to force the bones together in the manner described for young children. We were satisfied in putting the boy in a condition of comfort, but it was not possible to bring his mouth into the same condition that it might have been had the operation been made in early infancy.

19. The lower incisors cut through the mucous membrane through the periosteum and embedded themselves in the bone here, and it became necessary to do something for the boy, so we drew these teeth together by a slow process, putting some clamps upon the broader alveolar processes, and we drew them in far enough to meet with the lower teeth. It helped him very much.

20. The next picture shows the length of this right incisor, which was the only tooth in contact with the lower ones, the others lapped over all around. Had this patient been operated on in early infancy this condition here would never have occurred.

21. We have here the photograph of a little child upon whom I operated, which presented bilateral hare lip, protruding premaxillary bones and cleft palate, extending through its entire length, the vomer separated from both palatal plates of the maxillary bones. Naturally you would ask what would I do in a case of that kind. Unfortunately I find that surgeons occasionally resect and cut away these premaxillary bones. I consider that a great error, because it leads to a facial deformity that never can be overcome by any means, either surgical or artificial.

Let the premaxillary bones and the lip alone. Bring together the maxillary bones, utilizing the vomer, because it assists somewhat in closing the fissure in the palate and by its use we are able to close in part the great fissure in the palate, so then we would carry our sutures through the maxillary bones and through the vomer, and from the other side carry them through, so as to bring the palatal plates of the maxillary bones in contact with the side of the vomer, having freshened both the vomer and the border of the fissure, thus using the vomer in part to form the roof, and then bringing the bones together and fixing them there.

Having done this we wait until the union of the bones has taken place, after which we allow a sufficient time to elapse for the child to satisfactorily recuperate, and then we do an operation for the carrying back of the vomer to its proper relation to the maxillary bones. This we do by one of two processes; either we cut away a V-

shaped piece of the vomer, so as to bring this prominent part which carries the incisor teeth back into its place, so as to form a good circular alveolar border, or by making an incision through the vomer obliquely and then sliding it backwards and fixing it there until it can unite with the maxillary bones proper.

Having done this we again allow a sufficient time to elapse to get the child in good condition for another operation, and to enable the tissues to be thoroughly united and strong and free from all irritation.

Having done this the next operation for a case like this is (1) to bring the hard palate together; (2) bring the premaxillary bones back to position; and (3) the closure of the soft palate, and the last the closure of the lip.

Why would you advocate the closing of the lip before closing the cleft palate? Is it not true that a large majority of surgeons advise parents to have the lip operated on and postpone the palate operation until the child is from two to seven years old? This deformity is so conspicuous and distressing to the parents that surgeons close at once the lip, so as to relieve their embarrassment, and then later in life do the work inside the mouth. It would be a good deal like half closing the door, and then attempting to carry a piano through it. We need the open door because we have a good deal to pass through it. We need all the space the open lip affords for the transfixing of the bones, and to close the lip first would be a mistake.

To close the lip before the parts are approximated inside is an error. Besides it is very much more difficult to close the hard palate and bring these tissues into proper relation, than it is to do what I consider a simple operation—the closure of the lip.

22. This drawing shows the cutting away of a V-shaped piece of the vomer, and then forcing the premaxillary bones back into position and wiring in proper relation. The relation of the nose to the alveolar border is correct, but here we have the bones protruding away beyond the end of the nose. The surgeon should not cut this away. If he does he will create a deformity that he can never overcome.

23. Here we have a picture showing the application of the oral speculum and the exposure of the palate by its use. It is plated with nickel. We put it in the mouth in this fashion, and it sets better than any speculum I know of. It exposes to view the field of operation, and makes it

possible to proceed without the tongue interfering with our work.

24. This shows the speculum in the mouth of the same patient after the operation has been made. You see here the plates of lead on the side and here is the palate united. These plates hold the parts together. The sutures can not cut out.

The history and literature of the subject under consideration is filled with complaints on the part of surgeons that the sutures cut, and, consequently, the operations were not successful. This plan I regard as a simple procedure. The stitches can not cut out and the parts do unite. The splint holds the parts steady until union takes place.

We pass now to the consideration of the subject of operations on the palates of young children.

Parents are willing to have anything done to overcome the deformity. The question of artificial substitutes for the lost parts in cases of this character has occupied the minds of all who have considered it, and all surgeons who have operated for the closure of cleft palate have found cases in which there was not enough tissue to form a satisfactory palate and in such cases have decided that it would be better to resort to the use of artificial vela.

If we are to use artificial vela (and they are of inestimable value to some people) they should be used only as a last resort, the same as the use of any artificial substitute for a lost part. If a surgeon can save a limb, he will not amputate it. The patient may wear an artificial one, but it will be better if the part can be saved. So in the consideration of the management of cleft palates in patients beyond the period in life, when I consider it expedient to close the parts by approximating the bones, we must consider the question as to what surgery can be done. Is it possible for surgery to place these parts in position, which will relieve the embarrassment of the patient, and place them in a position so that the patient can go through life and speak and perform his duties better than he could by artificial appliances? If a patient could speak as well following a surgical procedure as he could by the use of an artificial appliance, far better would it be to have the surgical operation performed, because the artificial appliance wears out, gets out of order, and often at the most inopportune times he may find himself disabled and absolutely disqualified for performing the duties that are imposed upon him. If he can by the aid of an operation succeed in speaking well, then the operation should be performed.

I am of the opinion that many people to-day are wearing artificial vela, who would be much better off if the palate were closed surgically, though I am not disposed, nor do I in any way speak disparagingly of the use of artificial vela, because they have been of inestimable value to many people and enabled them to get along very well.

25. We have here the ordinary condition of a cleft palate in the adult, extending through the alveolar border.

26. This picture shows a cleft of the palate extending through the horizontal plates of the palate bones and well up into the hard palate.

This picture appears in the work of Dr. Norman W. Kingsley of New York, a gentleman who has contributed more to the subject of the use of artificial vela than any man, alive or dead, and his work on Phonation is a most excellent treatise on the manipulation of the human voice, and the mechanism of speech. In my opinion it is the best work that has yet appeared, and I cannot pay a tribute too high to that distinguished man for the work he has accomplished in the field of prosthesis.

27. In this you see the outline of an artificial vela extending down to compensate in a measure for what is absent in the soft parts. In this we have a high vault, and we find this opening exists.

One of the principles Kingsley has advocated in the construction of artificial vela is always to construct the appliance in such a manner as to lower the vault, because phonation is always better. In such a case as this, when Kingsley made his picture, it was unquestionably the better way to do to assist articulation, but by lifting away the parts and carrying them downward, we are enabled to bring the edges of the palate in contact and unite them, and we are enabled to lengthen the palate, and by so doing we have a better result than it is possible to obtain by the use of an artificial vela. Instead of making an artificial vela, I would advocate a surgical operation. Carry the wire sutures through from side to side, transfix the parts upon the black lead plates, twist the wires up, and by coaptation sutures the parts are united.

These pictures show you more in detail the technique, and as to how the muco-periosteum is denuded from the bone.

You will observe that we have no lines here indicating incisions lengthwise. They are unnecessary and harmful, because in cutting the muco-periosteum, which extends down from the superior surface of the bone, we are able to bring

the parts downward and bring them over, so as to meet the parts on the opposite side.

Why do I object to the lateral incisions practiced by Agnew of Philadelphia and by others, so as to relieve the tension so that the stitches would not cut out, for that is the reason why these incisions are made? In the first place I regard it as objectionable to cut the tensor palati muscle of the palate, because that muscle sweeps around the hamular process of the sphenoid bone and is distributed to the soft palate. The division of the muscle produces in the place of the incision a mass of cicatricial tissue, which is thick and can not perform the same function that normal tissue does in this place, where there must be flexibility, and besides the division of the muscle means the retraction of it, to such an extent that it can not unite again. Therefore, we have constant and great loss in palatal function, besides we have destroyed to a very great extent the factor, which aids in dilating the pharyngeal opening of the eustachian tube. Second, as a result of the division of the palate muscle we have defective hearing, and gentlemen who have had large experience in observing patients upon whom this operation has been made will remember that they complained of defective hearing. They can not hear as well as they formerly did. If you trace it back and study the anatomy of this muscle, you will see that the orifice of this tube does not normally dilate, and, consequently, we have as a result defective hearing. We have here divided the mucous membrane at the border of the cleft and elevated all the soft parts from the hard palate, including the periosteum.

Having thus denuded the hard palate of the periosteum, the next step will be to pare the edges of the cleft throughout the entire length of the soft palate, as well as of the soft parts removed from the hard palate, dividing also the membranes at the distal surface of the horizontal plates of the palate bones. These membranes cover also the nasal surface of the palate bones, and extend down to form the superior distal surface of the soft palate.

This done the soft parts readily fall together, and the surgeon sees that there is no necessity of making lateral incisions into or through the palate; moreover, the danger of non-union just at the termination of the hard palate is very materially lessened, and the holes which we frequently find after operations in the location named are almost invariably avoided. Oftentimes the splitting of the border of the soft palate, especially in cases where this tissue is quite thick, I have found

serves every purpose, as the mucous membrane divides and furnishes sufficient freshened surface of muscular tissue to enable us to get good union, and we thereby avoid the removal of any tissue whatever in this part of the palate, which is oftentimes very desirable. The height of the dental arch by this operation will be necessarily lowered to some extent. The space left between the bone and the muco-periosteal tissues in their new place will be filled with granulations (Fig. 29) and the exudate from the periosteum will produce new bone, so that we have a new hard palate formed by this operation.

29. We have the same condition of things here, except that we have a vertical section showing the plates in position and coaptation sutures. Upon this periosteum will be developed new bone.

30. This is an interesting picture, because it shows how we can sometimes proceed to make tissue for the lengthening of the palate. In almost all cases of cleft palate the palato-pharyngeal muscles are developed more than normally. The muscular bands, which extend down to form the palato-pharyngeal in cleft palate patients are broad, thick, heavy bands of muscle, and if we look in the mouth of a cleft palate patient we will find oftentimes that these bands of muscular tissue will in some cases nearly or quite approach each other, so the thought occurred to me that these muscles having developed to such an extent, that by the aid of an operation these bands of tissue may be utilized and enable us to supply the loss of the distal portion of the palate, and so by making incisions through them, taking away the half or two-thirds of each muscle, we may remove a very great defect of the palate and thereby dispose of the question that has been raised that the palate oftentimes following surgical operations is too short.

31. This picture shows the result of just such an operation. This man wore an artificial vela to cover this defect. One of the demonstrators in the college suggested that he should see me, and I performed this operation, which improved his speech and gave him great relief.

32. This picture shows the anatomy of the parts pretty well.

33. The question was asked me to-day why there was not more hemorrhage in operations by me. Simply because I do not divide any vessels. We have capillary hemorrhage, but seldom any arterial hemorrhage. This anatomical drawing shows you not only the action of the tensor palati muscles, but its relation to the palate, eustachian tube, etc., but it shows here the distribution of the palate branches of the posterior palatine ar-

tery. A lateral incision would divide these branches and there would be considerable hemorrhage, but we do not do that. We force the parts over, place the plates on them, and when union takes place the plates are taken off and the muscles take on their normal action.

34. This is a picture of a little girl that I operated on when she was ten days old. She is now 12 or 13 years old. There is a depression here. I had on the screen a while ago a cast of her mouth, showing the parts held in relation to each other, though the palate opening was extremely broad.

It may be of interest to you to know that in the family, of which this child was a member, there were six children. Two were normal. This was the second child, and she had double hare lip and cleft palate. The third child had a hare lip, the fourth child had double hare lip and cleft palate, the fifth child was normal, and the sixth child had double hare lip and cleft palate. This was unquestionably a case of heredity, because it existed in both sides of the family, though I would not say all cases of this kind are the result of heredity. They are the result of defective nutrition during the early months of gestation, especially the third and fourth months. I am satisfied many congenital deformities of this character are due to malnutrition in utero.

In conclusion I wish to state that if operations are made later in life the patient should be placed in the hands of some one who has the perseverance, the ability and the patience to train them how to overcome the defects of speech, which they have acquired for the want of tissues of the palate so essential to enable them to speak properly. Further, let me state that I am an earnest advocate of operating early. If any gentleman here, or any one, can make an argument in favor of postponing operations upon the palate to a later time in life, I would be very glad indeed to have him do so.

I believe the importance of this subject, and the welfare of the people who are afflicted (for really the affliction is more upon the parents than the child in its early infancy), demands a full consideration and discussion, and if I am wrong I should be made right. If I am right, then my methods should be accepted, and surgeons should not close the lip and let the cleft palate, the most serious deformity, go until a time in life when it can be done with less success. If I am right, I want my operation extended, so that we will not see these children growing up with congenital defects, which, in my opinion, should be corrected in early infancy.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

SECTION ON PEDIATRICS.

FRIDAY EVENING, APRIL 10, 1903.

DR. WM. A. NORTHRIDGE in the Chair.

SYMPOSIUM ON MENINGITIS.

HISTORY OF MENINGITIS.

BY FRANK LITTLE, M.D.

Definition.—By meningitis, unless the term is modified, we understand cerebral or leptomeningitis—an inflammation of the inner membranes of the brain.

Spinal or rachidian meningitis also occurs, and either cerebral or spinal may be traumatic.

Pachy-meningitis is almost always traumatic.

Collins, in his *Twentieth Century Practice*, divides leptomeningitis into

I.—True or genuine meningitis.

II.—False or pseudomeningitis.

Meningitis figures as a primary disease, but is more often a secondary disease, and is often a sequel to some other disease.

Classification.—As meningitis is essentially a secondary disease, the tendency is to classify it according to its germ origin, but at the present status of knowledge, the best classification is probably the one given above.

Of the true meningitis:

I.—Leptomeningitis.

II.—Cerebrospinal or specific meningitis.

III.—Tuberculous meningitis.

All of these originate in the same tissues, producing an effusion of some kind or other, varying as serous, serofibrinous, seropurulent, saniopurulent, and purulent.

Of the false meningitis, which is only a drop-sical condition of the meningites of the brain, occurring:

I.—In drunkards, and commonly known as "wet brain."

II.—Serous meningitis of infants, and sometimes in cachectic adults, expressing a depraved state, or exhausting diseases, or rheumatism.

Syphilitic leptomeningitis is discarded from the classification of true meningitis.

Like every other disease of serous membranes, leptomeningitis may pass into a chronic state, which is always secondary to an acute attack.

Among the older authors, simple leptomeningitis was referred to as meningitis of the convex-

ity of the brain, in contradistinction to basilar meningitis, as the tubercular or scrofulous or granular meningitis usually begins at the base.

Cerebrospinal fever, or spotted fever, or typhoid meningitis, or malignant meningitis, are synonyms for epidemic cerebrospinal meningitis.

A variety similar to this occurs sporadically.

History.—The history of meningitis previous to 1820 or 1840, is obscure, and difficult to trace, the older writers using the term of some symptom, as "madness" or "frenzy," doubtless referring to meningitis. The epidemic form was referred to as "the plague," or some similar term.

The first recognition of disease of the meninges as a disease, was published in 1768, from the notes of Robert Whytt of Edinburgh. Until then, the term hydrocephalus was applied to every form of intracranial disease except hemorrhage, and was recognized as a pathological condition. The term hypertrophy of the brain had also been described by Morgagni.

Until the time of Herpin inflammation of the brain substances was not considered apart from inflammation of its coverings. He first used the term meningitis.

After Whytt's description, based on twenty cases, in ten of which an autopsy had been made, observations were rapidly reported by Fothergill, Ludwig and others, but they did not reach the true pathology.

In about 1815, Golis showed that the ventricular dropsy was a secondary condition, depending upon inflammation of the membranes or vessels of the brain. Shortly after, Quin and Ford showed that these were the result of former inflammation or congestion.

Coidet in France and Abercrombie in England, published further observations in 1817, and Senn approached yet nearer to the true pathology.

In 1827, Guersant showed the form having granulations, and gave the name of "Granular Meningitis." Shortly after, Demongeot and Confrebron showed that these were tuberculous, and this was confirmed by others.

About this time, 1830, Gerhard of Philadelphia, published the result of 32 autopsies, and this with Papavoine in France completed the study, and finally settled the relationship of this form and tuberculosis.

Up to this time, only tuberculous meningitis was described, and Guersant in 1839, and Barthez and Rilliet in 1843, completed the distinction between tubercular and leptomeningitis.

In about 1844, the attention was turned to the Epidemic Cerebrospinal Meningitis. There was

an extensive epidemic of this among the civil population of Gibraltar, but it occurred mostly among the soldiers, and especially among the recruits.

It shortly appeared in the prisons and almshouses of Ireland and France, and a little later, in this country. These were described by Laurer Villar, Chauffard and Forget, as it prevailed in Versailles, Avignon, and Strasburg.

Most of these epidemics appeared in the spring of the year.

Dr. Mahne described it as he saw it in Ireland. An epidemic occurred in the public institutions of Belfast and Dublin, and the only victims were boys under twelve years of age, with one or two exceptions. Dr. Darby reported several cases occurring in boys from twelve to seventeen, and by Gelkrest, the ages were noted as two to fifteen, occurring entirely among boys.

In some cases, the boys had been perfectly well, had eaten a hearty dinner, and retired to bed in apparent good health, and were taken sick suddenly in the night, many cases proving fatal in a short time, sometimes in as short a time as fifteen hours.

As is usual in the epidemic, the later cases were not so severe, although many cases died in forty-eight hours.

The fatality was very great, varying from 80 per cent. down to 20 per cent.

In the next two decades, we had many cases in our own country, especially among our soldiers in the late Civil War, and particularly one epidemic in the western part of this State.

A resident repeated to me the history of the first two cases, which occurred in the town where she resided. "A man was taken sick," says this lady, "and died within one or two days, and a day or so later, his wife was taken sick, and died in an equally short time."

This was evidently without a diagnosis, for the bodies were exhumed shortly after, to see if they had died of poisoning.

The next period of history of this disease began about 1883, when Leyden demonstrated the diplococcus in the cerebrospinal fluid and the tissue of the pia, which Fraenkel and Hauser showed to be identical with the pneumococcus.

In 1887, Weichselbaum showed the presence in the exudate of the diplococcus. Pia Foa and Guido Bordon-Uffreduzzi later discovered the third and fourth form of bacteria.

From that time on, Adenot in France and Weichselbaum in Germany, began to show its relations to other diseases, and now it is a ques-

tion of some one of a certain number of the different forms of germs, and the relationship of meningitis with pneumonia and rheumatism, and a large number of other diseases.

THE DIFFERENTIAL DIAGNOSIS OF MENINGITIS IN CHILDHOOD.

BY L. C. AGER, M.D.

THE difficulties in diagnosis in meningitis, as in all other diseases, depend upon the nature of the individual case. We have all seen cases secondary to the acute infectious diseases or to otitis media, in which the severe headache, the sharp cry, the strabismus, the temperature, pulse, etc., prove to be unmistakable symptoms,—cases in which the diagnosis has been made by the anxious parents before our arrival. Even in these cases it is well to be on one's guard as the toxemias of other acute diseases, most frequently perhaps of pneumonia, at times produce severe cerebral irritation, closely simulating inflammatory conditions. Probably in many cases where a so-called incorrect diagnosis of meningitis has been made there has existed a meningeal toxic irritation producing a more or less transient congestion.

Perhaps the most logical method of considering the subject of diagnosis is to bear in mind the symptoms of those diseases that are most likely to simulate it. Owing to the process of development of the meninges, meningitis in children is practically always a lepto-meningitis,—that is, an inflammation of the pia. The various forms are therefore classified according to the part of the pia infected and according to the infecting agents. This double basis of classification renders impossible an entirely logical differentiation. As a result, we have (1) Cerebro-spinal Meningitis, generally supposed to be due to the pneumococcus of Fraenkel, but probably in most cases a mixed infection. (2) Chronic Basilar Meningitis, merely a chronic form of the first. (3) Tubercular Meningitis with acute infantile meningitis as a subdivision. (4) The various forms of non-tubercular meningitis. These are practically always secondary to other acute conditions, and are therefore sub-divided according to their exciting cause into (a) traumatic; (b) those due to otitis media; (c) those caused by secondary infection from the acute infectious diseases.

The symptomatology of these various conditions has been thoroughly covered in the last

paper. The diseases that are likely to be confused with these various forms of meningitis are classified by Rotch as follows: (1) Diseases of the stomach; (2) poliomyelitis anterior; (3) pneumonia; (4) malaria; (5) typhoid fever; (6) syphilis; (7) rheumatism; (8) nephritis.

Most of these, however, are not likely to present any real difficulty. Gastric disturbances at times suggest severe cerebral irritation, particularly in young children, but the confusing symptoms clear up quickly.

Acute malaria is often a very confusing disease in children, and it may be mistaken at the first visit for almost anything. A carefully kept temperature-chart is invaluable in doubtful cases. The temperature should be taken every two hours for one or two days. It must be remembered, however, that we will not necessarily find a complete remission during the twenty-four hours, and that even if we do the disease is not necessarily malaria. Now that the Board of Health is examining for the *Plasmodium malariae* there is no excuse for not having a pretty positive diagnosis of this condition. It is absolutely essential, however, that the blood smear should be made before any quinine has been given.

In poliomyelitis there is usually more or less inflammation of the spinal meninges with the resulting reflex irritation of stomach, intestines, bladder, etc. But there are no direct symptoms of cerebral irritation, there is little or no headache and the fever is mild. In case of doubt the rapid development of local paralyses will clear up the diagnosis.

Syphilis and rheumatism do not properly belong in this classification. Neither could in any way be mistaken for meningitis, although occasionally meningitis is produced by their specific organisms. In such cases the pathological condition is recognized and the point at issue is the determination of the cause and the consequent treatment.

From personal experience I do not see how nephritis in children could be mistaken for meningitis. Although the chronic forms are said to exist, they are very rare and the edema is such a marked feature of the acute form as to make the diagnosis unmistakable by the time cerebral symptoms appear. Moreover, urinalysis should be a routine custom in pediatrics as in other lines of practise.

Undoubtedly the two diseases that are most likely to be mistaken for meningitis are pneumonia and typhoid fever. Lobar pneumonia is frequently a very obscure disease in children. At

times the cerebral toxemia is so marked and the development of positive pneumonic signs is so delayed that it is impossible to make a diagnosis.

A case of this kind in my own experience is of considerable interest. In January, 1899, I was called in the night to see a boy with convulsions. He was about four years old, well nourished. The parents said that he had fallen on the ice and hurt his head a few days previously. When I saw him he was unconscious, the eyes were fixed, pupils contracted, and there was no response to light. At frequent intervals there were unilateral convulsions with a moaning cry. The next morning the condition was unchanged. I made a diagnosis of traumatic meningitis,—although there were no external evidences of injuries,—and sent the boy to the hospital.

A few days later I inquired by telephone about the case and was informed that the patient was doing very well with an attack of lobar pneumonia. Two or three days after that he was transferred to the Kings County Hospital with scarlet fever. He finally recovered.

Usually in these cases if we are on the lookout for pneumonia there will be found more or less evidence of embarrassed respiration before there are any positive indications of lung involvement. The leucocyte count in these cases may be of value, because there is a marked leucocytosis very early in pneumonia, but if the meningitis is purulent that would also give an increase in leucocytes. When there is any doubt it is wisest not to make a diagnosis.

Typhoid fever is, to my mind, much more common in childhood than is generally supposed. Rotch says that it is very likely to be mistaken for tubercular meningitis. Here, however, modern methods of diagnosis have come to our aid. First, the Widal test, which should be much more generally employed among children than is at present customary. Second, the leucocyte count. And, finally, lumbar puncture. This last procedure, according to Dr. Hand of Philadelphia, is of very great diagnostic value. In all forms of meningitis there is a diminution in the amount of sugar, more or less turbidity and various epithelial cells and leucocytes. It is, however, of particular value in differentiating tubercular from non-tubercular meningitis. Dr. Hand describes the method of examination as follows: The fluid should be collected in a sterile test-tube and allowed to stand until a strand of fibrin collects and settles to the bottom in from two to six hours. This should be carefully lifted out with a sterile platinum needle, spread on a slide dried by gentle

heat, fixed in flume and stained in the ordinary way. In almost every case of tubercular meningitis tubercle bacilli will be found. If they are not found a differential count of the leucocytes in the smear should be made. In tubercular meningitis from 65 per cent. to 99 per cent. will be lymphocytes. On the other hand, Goodheart and Still of London say: "Lumbar puncture for differential diagnosis is not of much practical value, because the particular variety of the disease is not at present of much moment."

You will observe that in this short paper no attempt has been made to give an extended comparison of the typical symptoms of the various forms of meningitis with the symptoms of those diseases that may simulate it. I take it for granted that such an attempt would be a waste of time for an audience of this kind. Instead the paper is confined to a brief statement of the more careful and accurate methods of diagnosis that it may be necessary to employ in obscure cases.

ETIOLOGY OF LEPTOMENINGITIS.

BY BENJ. EDSON, M.D.

THE part assigned to me in this symposium is the consideration of the etiology of simple meningitis, leptomeningitis, inflammation of the pia mater and arachnoid in children. By this limitation I am debarred from considering pachymeningitis, tubercular meningitis and epidemic cerebrospinal meningitis, these divisions of the general subject having presumably been assigned to others.

The first difficulty I meet arises from uncertainty in the matter of diagnosis, no fixed and definite line having been laid down whereby to certainly differentiate between the simple and the tubercular forms. Some authorities are inclined to class as tubercular all cases in which there are found cheesy glands and deposits in *any* of the organs, even when no tubercles can be discovered in the brain or meninges. This seems to me unphilosophical and unscientific, and at the same time misleading and confusing.

Again, not infrequently all the covering membranes of the brain and spinal cord are involved at the same time, and no man living can make a differential diagnosis as to which structures are or are not involved, and to what extent.

It becomes evident, therefore, that I am expected to follow a very straight and narrow and not absolutely defined path, and undertake what

writers on pediatrics scarcely attempt to do. In fact, almost every author, so far as I know, confesses his inability to treat of the several forms of meningitis each separately and distinctively by itself, but they usually group them together in a sort of jumble, seesawing back and forth from one to the other promiscuously without attempt at order, system, or distinctive consideration.

This phase of the subject is tersely summed up by Holt. He says: "At the present time we are not able to separate absolutely these groups by the clinical symptoms, the pathological findings, or even by the bacteriological study of the micro-organisms which are concerned in the process. All the forms will therefore be considered under the same head."

A well-known authority says that in the great majority of cases of meningitis, no adequate cause can be discovered.

It may seem that I have invaded the field of diagnosis, but the admitted impossibility of making a definite clinical diagnosis of the simple from the other forms renders the etiology of one particular form of the disease not only puzzling, but utterly hopeless in a considerable proportion of all cases.

Having thus set forth the impossibility of doing what I am expected to do, I will proceed to consider some of the undisputed causes of meningitis in children.

These I arrange under several heads, but without any attempt at strict classification.

1. The first and perhaps the only primary cause is in hyperemia of the cerebral vessels. This may be due to either active or passive congestion. Insolation, congestion due to exposure to the direct rays of the sun, is a generally admitted cause. Enough cases are on record to establish the fact that under favoring circumstances solar heat may and does cause meningitis. During the summer season it is a matter of daily observation that infants are wheeled about in baby carriages or exposed to the direct rays of the broiling sun for hours at a time, thus endangering the safety if not the life of infants so exposed.

Mental emotion and over-exertion may produce cerebral congestion and meningeal inflammation. Laborious and anxious study under great strain, fright, especially long-continued fear, may be causes of the disease.

Under obstructive causes, measles and whooping cough are prominent factors. The spasmodic cough that interferes with the return circulation, causes death at times from cerebral hemorrhage and sometimes produces meningeal inflammation.

Of course it is by no means easy to always differentiate between a meningitis and a hyperemia resulting from the same cause.

2. Secondary inflammations extending to the meninges. The one most commonly recognized under this head is otitis; inflammation extending from suppuration of the middle ear. Obviously the disease is at first local. It may soon extend over the convexity of the brain and even to the base, and often it involves indiscriminately all the cerebral coverings.

Syphilitic tumors and abscesses, by pressure, interfering with free circulation, may set up inflammation of the pia mater. I have seen this in an adult, and it doubtless may also occur in children.

It has been claimed that in ulcerative endocarditis, minute embolisms of the pia mater are sometimes found. It seems to me that this condition from this cause must be rare.

3. Pneumonia, especially of the upper lobes, is not infrequently complicated or associated with cerebral congestion and meningitis. Various other diseases, as erysipelas of the face and head, variola, scarlatina, rheumatism, and typhoid fever are sometimes attended by or complicated with meningeal disease. Just how the meninges become involved as secondary to these diseases is not clearly evident, whether by metastasis—whatever that may be—or by the conveyance of micro-organisms through channels of circulation does not appear to be well settled.

4. The traumatic form is usually if not always caused by micro-organisms from without. Usually all the cerebral membranes are involved and it may be a question in each case as to which was primarily affected. Infants and young children are subject to innumerable falls and blows on the head, either in play or from cruel and brutal parents and nurses.

One cause not to be overlooked in infants and very young children is protracted labor and severe instrumental delivery. Breech presentations with arrest of the head induce cerebral congestion with dire consequences, immediate or remote. According to Cruvelhier, arachnoid hemorrhage is the cause of death in nearly one-third of the infants that die immediately after birth. It is not far-fetched to assume that many of those that do not die at once are seriously injured and subsequently suffer from the injuries inflicted, and later develop meningeal disease. I recall a number of cases of severe instrumental delivery and breech cases with delay after the expulsion of the body, in which meningeal trouble

developed before the children reached the age of one year. I doubt not that you can recall similar instances in which your ideas respecting the primary cause of the disease, if not exactly settled, were at least debatable.

Of course we know that the head of the newborn child will tolerate severe compression and mutilation without showing subsequent ill effects; but there can be no doubt that difficult parturition is responsible for no small amount of meningeal trouble.

5. I can not close without referring to posterior basilar meningitis, an infective form of leptomeningitis occurring in children. It usually develops during the first nine months of life. In some respects as the vomiting and extreme retraction of the head it is not unlike sporadic cerebrospinal meningitis. It is probably not tubercular, as tubercular meningitis is considered unusual if not rare under the age of six months.

I have made no attempt to treat this subject exhaustively. I have simply endeavored to fill in the gap necessary to a complete symposium.

SYMPTOMATOLOGY OF LEPTOMENINGITIS.

BY ROSALIE BELL, M.D.

In enumerating and describing the various symptoms of leptomeningitis, we consider:

(1) Those which are common to all forms of the disease, and upon which we base our diagnosis.

(2) Those which occur only in one of the specific forms of meningitis.

The group of symptoms upon which we base our diagnosis is—(a) Sudden and apparently causeless vomiting; (b) persistent headache accompanied by delirium; (c) elevation of temperature; (d) constipation; (e) affections of the cranial nerves, causing photophobia, strabismus, inequality of the pupils, ptosis, nystagmus, deafness, aphasia, retraction of the head; (f) convulsions, general and local; (g) paralyses; (h) various disturbances of the cardiac, respiratory, and vasomotor symptoms, all of which symptoms are subject to modifications in degree and order of appearance, according to the location of the lesion, whether it be in the meninges of the convexity, base, ventricles, or cord.

In *meningitis of the convexity* the headache and delirium are more pronounced. There are local convulsions and hemiplegia, while the vom-

iting is less, likewise affections of the cranial nerves. Optic neuritis is rarely present.

In *meningitis of the base*, to which form children are most prone, the vomiting is more marked, the cranial nerves are affected and optic neuritis develops early, while delirium, convulsions and hemiplegia appear later.

In *meningitis of the ventricles*, the most striking features are the absence of any involvement of the cranial nerves, and the bulging and pulsating of the anterior fontanelle, in a young child.

In *meningitis of the cord* there are in addition pain and rigidity of the muscles of the back, paraplegia accompanied by loss of knee-jerk.

There are cases of simple meningitis due to (1) traumatism, (2) isolation.

Gowers and J. Lewis Smith describe several due to the latter cause. Here the meninges of the convexity are affected.

The most common and distinctive forms of meningitis are those of specific origin, such as the tubercular, the cerebrospinal, pyogenic, and syphilitic. The most common form is the tubercular meningitis. This occurs chiefly in children between two and ten years of age.

There is a prodromal stage which lasts from a few days to several weeks. The child is listless and indifferent, or cross and irritable, there being a decided change in disposition, usually restlessness at night, and sometimes an evening pyrexia. There may or may not be headache. If present in older children it is increased by any mental effort.

Later vomiting sets in, the headaches become intense and are accompanied by delirium. There is marked photophobia, drowsiness followed by convulsions. An elevation of temperature and increased pulse rate. In a few days we have rigidity of the neck, retraction of the head, strabismus, ptosis, inequality of the pupils, optic neuritis, and deafness. There may be a hemiplegia, marked hyperesthesia or an esthesia of the skin, and vasomotor disturbances as shown by the tache cérébrale of Trousseau.

Constipation and retraction of the abdomen.

The respirations are rapid in the beginning, later slow, intermittent, and irregular.

The pulse also is first accelerated then slow and irregular. A continued slow pulse with irregular respirations is considered an indication of tubercular meningitis. This stage may last a week or longer. Usually about the middle of the third week the child is in a stupor, which passes into coma. Urine and feces are passed involuntarily. Respirations become sighing and irregu-

lar and assume the Cheyne-Stokes character, and death follows shortly. This is the course of the average case. The duration of the different stages may vary by a few days.

The paralyzes may or may not be permanent. The temperature may continue to rise, or remain stationary after the first two weeks, or become subnormal, rising a number of degrees just before the end.

I have seen several cases in which the temperature did not rise above 102 degrees, the hyperesthetic areas later became an esthetic, and an excellent appetite continued throughout the course until coma developed.

In cerebrospinal meningitis, which occurs next in frequency, there are the symptoms common to the cerebral forms of meningitis, with spinal symptoms in addition and likewise a blood change, which is shown by the peculiar eruption and for which reason this disease is sometimes called "spotted fever."

There is rarely any prodromal stage. The disease begins abruptly with dizziness, vomiting, headache and delirium. Sometimes an elevation of temperature. There is considerable pain in the neck, back, and abdomen, retraction of the head, rigidity of the muscles of the back, and occasionally an opisthotonos. The legs are drawn up to the abdomen and here we have Kernig's sign; contraction of the flexors when an attempt is made to extend the legs, the patient being in a sitting position.

Convulsions are general and local, a marked hyperesthesia of the skin, and the tache cérébrale.

The cranial nerves are affected early in the disease. J. Lewis Smith quotes a number of cases in which he found paralysis of the muscles of deglutition an early symptom.

About the first week the characteristic eruption appears, which consists of spots varying in color from a mild erythema to a decided purpura, and in size from a pin-head to that of a half-dollar. They may be round or irregular in shape, several lesions coalescing and giving the appearance of large bruised areas. The eruption appears upon the face, ears, forearms, legs, and abdomen. There is often a herpes with it. Many writers mention in addition to these a papilliform eruption not unlike goose-flesh.

The joints, particularly the knees, are swollen and tender, resembling acute articular rheumatism.

If the spinal meninges are seriously affected, there will be a complete paraplegia accompanied by loss of knee-jerk.

The pulse may be accelerated early in the disease, then slow and irregular, and later rapid and feeble in cases which terminate fatally. Respiration is rapid in the beginning, then slow, irregular and sighing as the disease progresses unfavorably.

The temperature shows the greatest irregularity of all symptoms. There may or may not be a rise in the beginning. According to Gowers it reaches its highest point late in the disease. It may follow a typhoid curve or resemble that of malarial fever. Osler has recorded a number of the latter type.

Vomiting and constipation persist throughout. The urine may be increased or diminished in amount, contain albumin and sometimes sugar.

In this form of meningitis the various stages are not as clear-cut and definite as in the tubercular form, and its termination is more favorable. A fair percentage of cases recover. In these the eruption is not prominent, the convulsions fewer, and the patient does not pass into coma. The pulse is stronger and the respirations do not assume the Cheyne-Stokes character.

Loss of sight, hearing, and impairment of intellect are the most common sequelæ.

PROGNOSIS AND TREATMENT OF MENINGITIS.

BY JOHN R. STIVERS, M.D.

ACCURACY in the prognosis of a given case of meningitis is largely dependent on correctness in the diagnosis. It is generally conceded that the diagnosis is always difficult and in many cases wellnigh impossible in the early stage. There is reason to believe that some of the cures that have been reported were cases that never had the disease, but that recovery took place after a mistaken diagnosis and the recovery was credited to the treatment. But errors of this kind will occur in the experience of the most skilled and best informed physicians.

However, cases apparently free from doubt have recovered in sufficient number to warrant hope, no matter how severe the symptoms.

Authorities vary as to the rate of mortality, but all agree that it is a serious disease and the prognosis is grave.

In tubercular meningitis the cases nearly always have a fatal termination for the reason that the meningitis is accompanied by miliary tuberculosis in some other organ or organs of the body to an extent that precludes the possibility of recovery, although cases of tubercular men-

ingitis have been reported as cured, in which, the patient having died from some other disease, the autopsy showed the presence of tubercular nodules in the membrane of the brain. More often, however, if recovery from the tubercular form does take place it leaves the patient with some serious mental or physical defect such as imbecility, deafness or paralysis. Professor Jacobi states that a case of tubercular meningitis that recovered thirty years ago is still alive in an insane asylum.

The mortality in epidemics of meningitis is variously estimated at from 30 per cent. to 75 per cent., being dependent somewhat on the severity of the epidemic and the general conditions of the persons affected. In children under two years of age the death rate is very high, but as age advances there is more hope of recovery. Dr. William Browning of this city states that he believes that about 50 per cent. of all cases of meningitis, excluding those of tubercular origin, end in recovery.

In the practice of medicine the old maxim, "that while there is life there is hope" is a good rule for physicians to follow, but in regard to meningitis it may be stated, that, when the patient becomes oblivious to light and noise; when the pupils become persistently dilated; when the skin is pale and covered with a cold perspiration; when there are involuntary evacuations of urine and feces; with local or general paralysis, and a coma or semi-comatose condition develops, then the case is beyond hope. The duration of the disease in fatal cases is usually less than a week. In epidemics many deaths occur within forty-eight hours. Of the cases which terminate in recovery, the majority last at least two weeks and many cases run much longer before convalescence is established. The outlook is much better in sporadic cases than in epidemics.

The sequelæ of meningitis relate chiefly to the nervous system. The child may have a complete recovery in all the physical symptoms but be deficient mentally. Deafness is not uncommon after severe cases and deaf-mutism is an occasional result in young children. The speech is sometimes affected and as a late result epilepsy, hydrocephalus and paralysis may develop.

As different cases of meningitis present a variety of symptoms the management of each case must be varied to meet the indications. The rational treatment of meningitis has two objects in view; first, to make the patient as comfortable as possible, and second, to restrict or limit the inflammatory process. The room selected for the

patient should be as far removed from the noise of the street as may be; it should be somewhat darkened and all the movements in and about the room should be as quiet and orderly as possible. Chloral and bromides, particularly the bromide of soda, are relied upon by many to hold the severe nervous symptoms in check. Both may be given in doses considerably larger than would ordinarily be thought safe. Chloral may be administered by rectum when the stomach fails to retain medicine or food. If bromides and chloral fail to give the desired result opiates in some form must be resorted to. Morphine is believed to be the most desirable preparation because of the accuracy of the dosage and facility with which it may be administered hypodermically. In case of convulsions inhalations of chloroform will give the most prompt results and when carefully administered I believe it to be devoid of danger. Besides relieving the convulsions it frequently produces a quiet sleep which is so much needed by the patient. Aconite in small and oft repeated doses is recommended by some, either with or without the bromides to limit the cerebral congestion. When given the effect should be carefully watched on account of the depressing effect upon the circulatory system.

A calomel purge should be given in the beginning of the disease and may be repeated from time to time during the progress of the case. Ergot, which has been much used in times gone by and has received much praise for its supposed effect upon the disease, has been discarded. In fact, its use now is condemned by most practitioners, and certain it is there seems to be no physiological indication for the use of this drug.

Bleeding, either local or general, and blisters are strongly advocated by German writers and by many others. Potass. iodide and inunctions of mercurial ointment have been extensively used, but there is not much clinical evidence to prove their value except in cases of syphilitic origin. The head should be shaved, and cold, in the form of an ice-coil, applied. For cerebrospinal meningitis tapping by the lumbar puncture is recommended for two reasons; it relieves the pressure to some extent and the microscopic examination of the fluid determines the positiveness of the diagnosis. It must be done early, before the fluid becomes thick, and may be repeated a number of times.

Finally, to summarize in a few words the plan of treatment that I believe to be the most appropriate for a case of meningitis, I would begin with a grain of calomel given in broken doses,

followed by a saline; would recommend chloral or bromides or a combination of both to relieve the severe nervous symptoms; these failing would give morphia in sufficient quantity to meet the indications; chloroform for the convulsions if they occur; strophanthus or digitalis if needed to support the heart, a cold coil to the shaven head and a liquid diet or nutrient enema.

TUBERCULAR MENINGITIS.

BY ROBERT T. WHEELER, M.D.

TUBERCULAR meningitis is a tubercular inflammation of the pia mater of the brain, sometimes also involving that of the cord. It is doubtful if it ever occurs as a primary disease.

It is generally associated with pulmonary tuberculosis and the extension of the tubercular process in the largest percentage of cases is through the tracho-bronchial lymph nodes, the germ being carried directly through the blood, or by the lymph. It may occur also as a part of a general miliary tuberculosis or follow tubercular foci in the alimentary tract, bones or joints. As it has been found that the alimentary tract is rarely primarily affected with tubercular disease, there is only a remote chance that a child may develop this disease after the ingestion of milk from tuberculous cows. More rarely it may follow tuberculosis of the skin or mucous membranes.

It is most common between the ages of three and six, and although many cases are recorded under one year of age, it is an uncommon disease during the first year of life. Many of the cases hitherto reported as tubercular meningitis were probably of the serous or septic type of the disease. Autopsy records are the best proofs. The post mortem records of the Liverpool Infirmary for Children for seventeen years shows not a single death in infants under one year of age from tubercular meningitis, and only one from *tabes mesenterica*. Injury is very rare as an exciting cause.

This disease may occur in children whose family history is free from the tubercular taint, but in these cases we can sometimes get a direct history of exposure, or, if not, there must have been some latent form of tuberculosis in the body as a result of exposure at some remote previous period. In the latter class of cases only autopsy would show the primary forms of the disease.

Lesions.—The lesion consists in the productions of miliary tubercles with the products of

ordinary inflammation of the pia mater, lymph and pus, together with an accumulation of fluid in the lateral ventricles of the brain. Frequently the tubercles appear in the pia mater of the upper portions of the cord.

When few in number they are usually only at the base, especially along the Sylvian fissures and in the interpeduncular space.

The amount of lymph and pus present is rarely great and never equal to that seen in simple acute meningitis. In cases which have survived some weeks there is a thickening of the pia mater in places with a production of new connective tissue. The brain substance under the pia is congested, softened and the seat of a superficial encephalitis. The lateral ventricles are usually distended with clear serum, the amount varying from one to four ounces in an acute case, and somewhat greater in the subacute cases.

The distention of the ventricles leads to flattening of the convolutions of the brain against the skull and to bulging of the fontanelles.

Symptoms.—The symptoms are apt to vary greatly according to age of child. In young infants the onset is apt to be sudden with high temperature and violent convulsions, with quickened respirations, 30, 40, 50, and rapid pulse, 130, 140, 150. Clonic spasms and strabismus often occur. Paralysis is often present and diarrhea is present rather than constipation.

Vomiting may occur, but is not constant. There is generally bulging of the fontanelles. In these cases the course is apt to be rapid, reaching a fatal issue in a week. The differential diagnosis between these cases and those of the serous or septic forms of meningitis is hard to make, and one is never positive until a lumbar puncture may show the tubercle bacillus in the exudate, or, in lieu of that, an autopsy finding.

In older children the onset is slower. In most cases the history can be obtained of symptoms referable to the primary tubercular foci, such as cough, naso-pharyngeal catarrh, gastro-intestinal disturbances, etc.

Among the first symptoms of the beginning meningitis are irritableness, disinclination to play, drowsiness, loss of appetite and violent attacks of vomiting without apparent cause. There is also generally constipation.

After these symptoms have existed some time, the child may be seized with a convulsion followed by a deep stupor. The headache at first is not apt to be severe, and while there is photophobia, it is not so violent as in other forms of meningitis. The convulsions, too, are not so apt

to be as violent as in other forms and the temperature is moderate.

If the temperature is very high it is because of some other tubercular lesion.

Kernig's sign—that of sitting a child on the edge of the table with a resultant stiffening of the legs—is present in a majority of cases, but it may be absent as well as the rigidity of the muscles of the neck with retraction of the head in a considerable number of proven cases of tubercular meningitis.

The pulse is apt to be somewhat accelerated at first, becoming slower and irregular later, while in the last stages of the disease it becomes very rapid and weak. The breathing is generally of the Cheyne-Stokes variety.

The last stage is one of complete coma with widely dilated pupils which do not respond to light. There is general muscular relaxation. There may be retention of urine.

Diagnosis.—I have mentioned the principal diagnostic points in my symptoms. With our improved microscopic technique of to-day the differential diagnosis can be made by an examination of the cerebro-spinal fluid.

Hand, of Philadelphia, lays great stress on the care with which the fluid should be taken and the transference of the fibrin to the microscope slide. He reports a series of 30 specimens, in which he found the tubercle bacillus in 21; 2 of the cases in which no bacilli were found were proven to be pneumococcic meningitis; 1 to be serous; 1 normal fluid; 1 suspected brain tumor, leaving only 3 cases of undetermined origin—probably septic—the clinical course not indicating tuberculosis.

Diminution in the amount of sugar in fluid has some value—a small amount being found in the serous forms and absence in the tubercular.

Lumbar puncture, besides being of value as a diagnostic procedure is useful as a therapeutic measure. The withdrawal of an ounce or so of cerebro-spinal fluid seems to lessen the severity of the symptoms and makes the little patient more comfortable.

When we have made an absolute diagnosis of this disease we have settled our prognosis, and that is a fatal termination.

There may have been cases of tubercular meningitis of a moderate degree of severity which have cleared up, but those authentic cases in medical history have either gone on with pronounced mental impairment or have died a few years later with other evidences of tuberculosis.

Treatment.—With a disease having such a gloomy prognosis necessarily little can be held

out in the matter of treatment. Our therapeutic measures should be energetically directed towards prophylaxis. Mothers must be educated.

Children known to be of scrofulous or tuberculous families must be looked after with great care.

Overheating of the head by feather pillows or by exposure to the sun and by hot rooms must be guarded against. Coffee, tea, alcohol, and over-exertion, both mental and physical, must be forbidden.

Eczema and other eruptions of the skin must be healed. Nasal catarrh must be treated. Enlarged lymph nodes must be reduced by treatment or exercised. Give these patients an abundance of animal diet, daily cool bathing and keep them in the open air. In winter give them cod liver oil and courses of small doses of arsenic for some months during each year.

BROOKLYN MEDICAL SOCIETY.

The eighty-third regular monthly meeting of the Brooklyn Medical Society was held on the evening of Friday, May 15, 1903, at 1030 Gates avenue. The Vice-President, Dr. John H. Droge, occupied the chair.

The minutes of the previous meeting were read and adopted.

Applications for membership: Dr. Lawrence Cardonna, 833a Lafayette avenue, L. I., '90.

Dr. Shipley, on behalf of the Membership Committee, said a few words to the members on the regularity of physicians applying for membership in the society, and showed how watchful he was, by reading an advertisement in a daily journal, being an endorsement by a physician of a certain patent medicine. He cautioned the members on the necessity of being on the lookout for such men, and of barring them from entrance into the society.

Clinical Section: Dr. William Moser presented a specimen of a cast from a case of fibrinous bronchitis. He said that up to 1885 not more than 100 cases had been reported. That they were lamellated in concentric forms. That they presented the Charcot-Leyden crystals and Kuschmanns' spirilla. He said that Flint found hematoidin crystals (but not so frequently as in abscess of the lung). He also said that the diagnosis cannot be made by physical examination alone, but only by the presence of the casts. Acute primary fibrinous bronchitis was very rare. Lasts five to ten days. The mortality was very

great, being 40 to 50 per cent. Prognosis was unfavorable as to cure. The mortality not being so high in the chronic as in the acute form. Most cases occur in men.

DR. PETER SCOTT presented a specimen of the long penal bone of the walrus. He said that it might be of some interest to the members because of its rarity.

DR. JAMES J. BOWEN also presented specimens of the long penal bones of the walrus and the seal.

PROGRAM.

DR. HENRY MITCHELL SMITH read a paper on "Indoor Humidity."

The necessity of regulating the atmospheric conditions of our living rooms was the theme. The relationship between the humidity and the temperature both in health and in sickness is of paramount importance. He showed that this relationship was not properly maintained, being especially bad in our steam-heated apartments. He showed very conclusively that the majority of people today live in an artificial atmosphere, which is in no way conducive of good health, and pointed out the necessity of physicians instructing those with whom they came in contact of the essentiality of regulating not only the temperature, but also the degree of humidity, of their living rooms, especially in the case of sickness.

Discussion by Mr. D. J. Ould, Dr. Brader, Dr. Sullivan, Dr. Scott, Dr. Rankin, Dr. Hettesheimer.

The consensus of opinion was that Dr. Smith had presented a subject which was very pertinent. Adjournment and social session.

HUGH EDWARD ROGERS, M.D.,
Recording Secretary.

THE BROOKLYN GYNECOLOGICAL SOCIETY.

FREDERIC J. SHOOP, M.D., Editor.

STATED MEETING, MAY 1, 1903.

The President, FRANK BALDWIN, M.D., in the Chair.

REPORT OF CASE: COMPLETE PROLAPSE OF UTERUS;
VENTRO-FIXATION.

DR. S. J. McNAMARA: Recently a woman came to the Kings County Hospital suffering from procidentia, the uterus and vagina being between the thighs. The displacement was reduced, and she remained in the hospital for five

weeks, although not quite in the condition we would like to have her, so, upon her request that something be done to remedy her ailment, we submitted her to an operation. We proposed doing a supravaginal hysterectomy and sewing the stump of the uterus to the abdominal wall, hoping that the broad ligaments were sufficiently relaxed to permit the stump to be brought up.

On opening the abdomen, we found a peculiar condition. The uterus had fallen down and the bladder and bowel had become adherent, entirely shutting off the pelvic contents. We had considerable difficulty in dissecting off the bowel from the bladder before being able to get at the uterus. Then we found the uterus was not as large as we had expected, but with the left ovary and fimbriated tube extremity adherent to the right side. Both tubes and ovaries being diseased, were removed and a ventro-fixation of the uterus was done.

REPORT OF CASE: PERSISTENT CAPILLARY OOZING FOLLOWING THE BREAKING UP OF DENSE PELVIC ADHESIONS: HYSTERECTOMY TO CONTROL HEMORRHAGE.

DR. J. C. MACEVITT: Fifteen years ago a patient entered St. Mary's Hospital with pelvic infiltration—she had the plaster of Paris hardening of the vault. At that time we were using the supposed absorbents, conium and iodoform, locally. She left the hospital after a few weeks' treatment, somewhat improved. About six years ago she returned with the old condition existing, at which time I suggested an operation. She refused. Two weeks ago I saw her, and on account of constant, severe pain she was willing to submit to any operation for relief. I opened the abdomen and found the tubes and ovaries buried in a mass of exudate material. After releasing them, there was left a very large denuded surface. The adhesions were so multiform in character that, in breaking them up I destroyed the peritoneum above the pelvic vault, exposing the iliac vessels and uterus. After sewing together the remains of the broad ligaments as well as I could, having inserted hot towels over the raw surface to stop oozing, I proceeded to unite the abdominal opening. Before doing so I found the hemorrhage was so great that I had to reopen the broad ligaments to see if I could ascertain and check the bleeding points. I succeeded for a time, by packing the exposed and bleeding surfaces thoroughly with iodoform gauze, bringing a strip out to the lower end of the wound. Rather sus-

picious that I had not quite controlled the bleeding, I left two inches of the lower end of the wound open and waited. To my embarrassment the blood oozed up through the opening, soaking the protruding portion of the gauze. The operation had taken some time, the patient's condition was not favorable, but there was nothing to do but to reopen the abdominal cavity and find the cause of the hemorrhage. This I did, and found the general oozing from the exposed surfaces so persistent I was finally compelled to do a hysterectomy. The patient is now convalescent.

Discussion.

DR. W. B. CHASE: We all meet with embarrassing cases such as Dr. MacEvitt describes. I have had some success in the application of acetic acid, one part to three of water. I have found it to be a better styptic than the persulphate of iron, which makes such a dirty mixture with the blood that it must be slow in absorption. I have been accustomed, in cases like this, to rely on packing, but to do it in this way, I take a Mielwitz bag, one-half to two inches in diameter, according to the area of oozing, and put it against the bleeding point, and then gradually pack it full of gauze strips. One can allow part of the packing in the bag to protrude from the angle of the incision. The advantage of the bag is this, that you concentrate your pressure within a given area, and when you want to remove it you can do so with more deliberation. You can pull out a part each day, and then when you get the last out, it is easier to remove the bag than when the gauze is placed directly in contact with the bleeding surface.

Paper: THE LATERAL AND RETRO POSITIONS OF THE UTERUS: THEIR CLINICAL SIGNIFICANCE AND TREATMENT.—BY EDWARD J. ILL, M.D.

Discussion.

DR. W. B. CHASE: I desire to congratulate the Society on the opportunity of listening to Dr. Ill's paper. It opens up a mine of knowledge, which I have not explored, and has given me new ideas, not only of the pathological conditions he speaks of, but also of the treatment of them.

I had anticipated that he would elaborate the methods of suspension and fixation in dealing with these cases.

DR. J. C. MACEVITT: Most cases that I see, both in my private and hospital work, come with

more marked lesions than simple maldeviations of the uterus. Those which do come I generally find are due to traumatism and the uterus is fixed, requiring surgical interference, rather than local treatment.

The query as to why women have these lateral conditions is one of interest. Why they should have intense pain with a simple malposition of the uterus, without pressure, I cannot understand. If the ligaments have been shortened for a considerable period through inflammatory condition there, pressure will account for the pain. The Doctor's treatment, producing cures by a reposition and douching for so short a period, holds out great encouragement in the treatment of these cases.

The fact that the Doctor has not been compelled to resort to surgical procedure, except in two cases, demonstrates the fact that these conditions are amenable to local treatment.

Reposition by a tampon is on the same principle as that of a pessary. Personally, I am opposed to the use of pessaries in nearly all conditions. If you put in a pessary, or if you put in a tampon, as referred to by Dr. Ill, you put the utero-sacral and the broad ligaments on the stretch. This stretching will be antagonized by the ligaments themselves, the ligaments forcing the foreign support downward and out, aided by the secretion from the large mucous glands in the vagina.

DR. G. McNAUGHTON: I agree with the Doctor's method of treating the ligaments. The old plan of stretching them once or twice a week, and then stretching them again the next week, and so on, for months, I think, only makes matters worse, but putting the patients under an anesthetic, and stretching and holding the two ends far apart, making a permanent affair of it, I believe to be the only way to reach it. These cases subjected to constant office treatment, in my opinion, are made worse.

I have had a little experience within the last week which was rather surprising to me. A patient went to another city, and she found it necessary to go to a gynecologist, well known the country over, who told her that she had a movable retroflexed uterus. He said that there was no use doing anything for her, except to put in a pessary, and he placed in a pessary, such as I have never seen placed in anybody, and it held that uterus in perfect position. It was bent almost at an acute angle, with the long bar running up behind the uterus. She came back and stated the circumstances, saying that she had felt very

much better. I removed this pessary and found the fundus of the uterus entirely out of reach of the examining finger. I shall have to confess that a pessary sometimes does hold the uterus in position, although I have never been very successful with them.

DR. C. JEWETT: Uterine displacements of the kind considered in the paper, and nearly all others, I believe, present few or no symptoms if uncomplicated. In all the cases the Doctor has cited there were complications sufficient to account for the symptoms. Displacements of the kind mentioned can very seldom call for treatment *per se*. It is to the condition of the peritoneum, the ligaments and the appendages that the treatment must be addressed.

I would not expect prolapse of the ovary to result from lengthening of the broad ligament by lateral uterine displacement. The lengthened ligament is drawn taut and we tighten the ovario-pelvic ligament to relieve ovarian prolapse.

Unlike Dr. McNaughton, I would look for more benefit from gradual stretching of the scar tissue, after the Brandt method, than from forcible divulsion at one sitting. After the latter procedure the uterine displacement and the fixity of the pelvic organs would eventually be more pronounced than before.

I would like to ask the object of the knee-chest position for hot douching. The aim, in using the douche, is the prolonged action of heat. This would be better assured in the lithotomy position.

I must take exception to the statement of one speaker to the effect that pessaries have no place in gynecologic practice. I would not think of using a pessary, however, in the conditions described in the paper, surely not with sensitive utero-sacral ligaments.

DR. L. G. BALDWIN: In the main, my treatment of these cases has been that of Emmet, which consists in the gradual stretching of the ligaments. I am familiar with the work of Schultze on this subject, and was particularly gratified with his book when I read it, because it was so nearly in line with Emmet's teaching and on the lines he has dwelt on for years.

In my own experience, shortening of the utero-sacral, or one or the other of the broad ligaments, has, in the majority of cases, been due to an infection of some kind, with its consequent inflammatory condition, and, unless the case is congenital, I do not see how a shortening would occur without some such inflammation.

In cases that have not been relieved by the pulling forward of the cervix with a tenaculum, and

such tamponing as the patient would stand, repeated at frequent intervals, I have opened the cul-de-sac and cut the ligaments. In many of the cases where I had not suspected any complication, I have found an adherent tube or an adherent ovary as a very marked cause of the condition.

I have used the glass stem in a good many cases, and find it of very great service in straightening the uterus. I would be very much pleased if Dr. Ill would tell us, in closing, how he fastens the glass stem in the uterus. I have had some trouble in securing it.

DR. W. E. BUTLER: I would like to ask Dr. Ill if the shortening of the round ligaments is not due to some inflammatory trouble? Has he seen any ill results from the stretching, or any rupture of the vessels, any little exudate? Following the placing of this glass tube has he noticed any infection of the tubes? It seems to me that a large element of danger is incurred by the introduction of the tube into the uterus and leaving it for six days. The cavity of the uterus is sterile in the normal state and the cervical secretion germicidal to all organisms attempting to gain entrance to the cavity. If we introduce a rod into the cervix we produce some traumatism, change the character of the secretion and thus prepare a way for infection. These, I think, are important questions. I would also like to ask the doctor how he stretches the ligaments, or brings the cervix forward.

DR. C. HYDE: Does Dr. Ill find in these cases of lateral deviation, disease of the appendages? What is done with the utero-sacral ligaments in this case? What would be his technique in treating the diseased appendages when so found?

DR. F. J. SHOOP: I remember when Dr. Byrne read a paper sometime ago on the use of pessaries. He condemned the very kind of pessary Dr. McNaughton spoke about, saying, if you used a pessary with a decided sharp curvature it would convert an ordinary retroverted uterus into a retroflexed. He cited one or two cases in which that occurred. Dr. Butler spoke about infection following the use of the glass tube. If Dr. Ill uses a solid glass stem, such as Dr. Baldwin uses, I cannot see how an infection can be carried, because there is no more of an opening for the germs to go through than in the normal cervix without the stem. If it were a hollow tube there might be some chance for infection.

DR. E. J. ILL: With reference to Dr. MacEvitt's remarks as to the cause of pain: It is difficult to understand that this is a disease of the cellular tissue—it is not a disease of the peri-

toneum. There is no question in my mind that the congenital case must be an exceedingly rare one, but a girl or a child may acquire a disease of the ligaments by infection through the lymphatics, from a rectal disturbance, for instance, which later on will be the cause of circulatory disturbance in the uterus. She has pain in either the short or the long ligament, as the case may be.

The treatment of those cases of displacements, as I shall allude to further on, can not be compared with those cases needing a pessary or a tampon. It is entirely a different matter. A tampon, in my opinion, simply elevates the uterus, and in these cases we do not need this sort of treatment—a simple elevation of the uterus is perfectly useless. The uterus is already lifted as far as it will go. If both utero-sacral ligaments are short, the uterus is already lifted up 2 cm., and it is sometimes difficult to reach those cases with the finger because of this elevation.

The glass plug I use is a plug that measures 33 mm. around, and is of solid glass.

Dr. Baldwin very truly says the glass plug does not always stay in. It will stay in if you will use steel sounds to stretch the uterus. If you use a divulser it will not stay in. You must have a complete relaxation of the muscular fibers around the internal os. Even with that the uterus will now and then expel the glass plug, and expel it under a great deal of pain during the first twenty-four hours. If the patient tells you that the pain has suddenly stopped, you may be sure that the glass plug is in the vagina. There are cases where we sometimes have to do the operation a second time.

Dr. McNaughton is perfectly right when he says that these cases are not suitable to office treatment. I think an immense amount of mischief is done in just this kind of a case, if you treat them in your office.

As to Dr. Jewett's remark about the prolapsed ovary, I think we will understand that when one ligament is short and the other ligament has been stretched, the little sulcus behind the broad ligament in which the ovary naturally lodges is straightened and smoothed out; consequently, the ovary only falls down. It is not an uncommon thing to have a prolapsed ovary accompanying this condition, and it was only the other day that I saw a young lady of nineteen, who had the right ovary removed on account of the pain due to the prolapsed ovary and a lengthened ligament.

The reason for the pain in a lengthened ligament has been a matter of a great deal of thought

with me, and I have come to the conclusion that a long ligament must stand more strain than a short one, consequently it becomes sensitive. These patients will tell you that they are perfectly easy when they lie down and keep quiet, but when they are on their feet much, then is the time this long ligament hurts them. This is usual in those cases that occur in a woman who begins to have pain with puberty. The woman that begins to have the pain later in life has it usually in the short ligament—the inflammatory trouble has been a sudden one.

I saw a young woman within three or four days, who had very acute pain in her left side for two months. She was perfectly well, previously. She had a tense, swollen left utero-sacral ligament. In going over the history of the case I found out she had an acutely inflamed pile at that time with an ulceration, and that her doctor drew a knife through this pile and let out a clot of blood. Soon after that she began to have pain.

The knee-chest douche is of value in this way: When we put patients flat on their backs a certain amount of water is retained but when we put our patients on the knees and chests, we have besides this certain amount of water retained, the pressure of that amount of water that remains in the vagina, dragging the uterus forward.

We all know how the vagina balloons in the knee-chest position, and one can introduce more water in this way, and thus produce more forward dragging on the short ligaments. It is in the same line that we use mercury bags in the vagina to produce increased pressure for pelvic exudate.

Of course, the pessary is absolutely of no use. It is not a case for a pessary—never has been. Any one who attempts to put a pessary in such a woman does an immense deal of harm.

About cutting the ligaments, I think that is a very dangerous piece of business. Dr. Burrage opens up the abdomen to cut the ligament alongside the uterus, and if bleeding occurs he stitches the wound up crosswise, so that he lengthens the ligament. I followed him once in a very severe case—a case that was so severe that my muscular power was not sufficient to stretch the ligaments. I opened the abdomen and cut the ligaments, but it took half an hour to stop the bleeding which came from some hemorrhoidal vessel or branch of the uterine. I have sometimes removed the uterus in fifteen or twenty minutes, and then tried to stop bleeding in the cellular tissue of the utero-sacral ligaments, which took twenty to

thirty minutes more. The ligament is well supplied with blood vessels and there may be great danger in cutting them. Still the operation may prove a valuable one.

I have never seen any tubal inflammation in these cases. When I speak of diseased appendages I do not have reference so much to the ovaries. I suppose Dr. Hyde means the tubes. I have, then, called the case one of diseased appendages—the shortening of the utero-sacral ligaments is a minor difficulty as compared to that. When I do find diseased appendages I treat them through the abdomen, as suits the case, and in lifting the uterus up if I find these cords tense and the uterus fixed, I do the same thing through the abdomen that I would through the vagina. I put two fingers behind the uterus and pull the uterus forward until it comes up to the pubes. The method of stretching these utero-sacral ligaments under an anesthetic is exactly the same. I am always sure to give myself as much power as I can possibly use. I put my foot on a chair to brace my elbow, I put two fingers into the vagina behind the uterus, and as I lift the uterus forward I immediately feel these two cords. I then put the left hand outside and gradually work my way down until the two hands meet. Then I begin to massage and stretch the ligaments, and never stop until the anterior surface of the uterus reaches the pubis.

It stands to reason when you do that amount of work, you are going to break some blood vessels in the utero-sacral ligaments. I have never seen a hemocele, but I have seen a doughiness in the tissues afterwards, and it is for that doughiness, and at the same time to keep the ligaments on the stretch, that I put a glass plug in the uterus and fill up the cul-de-sac with gauze through the vagina. I get increased pressure there and keep the uterus forward. While I put the gauze in I have a volsellum in the anterior lip, and hold the uterus up toward the pubis. I suppose if I did not do that, the disturbance produced in the cellular tissue—a little bleeding possibly—would assist in producing a new scar and a new retro-position. As it is, I have been obliged to do this operation two or three times before I got results. I have in mind the daughter of a doctor, about twenty-six years old, who was a confirmed invalid. She had been an invalid since she left school at fifteen or sixteen, and the first operation was a total failure. After the second operation she was able to walk two or three blocks. Now, two years after the third operation, she can play golf for two or three hours at a time.

THE LONG ISLAND MEDICAL SOCIETY.

STEPHEN L. TAYLOR, M.D., Editor.

The 121st regular meeting was held on the evening of June 2, 1903.

The President, Dr. R. H. POMEROY, was in the Chair.

SCIENTIFIC PROGRAM.

Paper: A Case of Intestinal Paresis in a Child. Dr. Hotchkiss.

Thomas L., 4½ years, sick five days; under my attendance four days. Symptoms: Sighing, respiration, prostration, sluggish intestinal action, vomiting, at first mucous in character, and later, fecal. Diagnosis: Some form of intestinal obstruction, possibly due to appendicitis. Parents are living, though neither robust, but in fair health with appearances of tubercular diathesis. The patient had never been seriously ill, though always delicate.

He was treated for one day with ordinary home remedies for an attack of indigestion. Not yielding to the treatment, but advancing, I was called in and found active symptoms wanting, except those named above. There was no pain or distention, paralysis, rise of temperature or pulse. Calomel in 1/10 gr. doses was given the first day, followed by saline and saline injections. The calomel was retained, but the saline vomited. An injection personally administered was followed with fair result, and the cause was thought to have been relieved. This injection was performed at midnight on the second day's illness. A fair night followed, but next morning an aggravation of symptoms, instead of abatement, was found. The vomiting had become the brownish beef juice color and occurred whenever any quantity of water or secretion had formed in the stomach. The abdomen was flattened and restlessness increased.

Dr. MacNaughton was called in consultation and concurred in the advisability of operation. This was done in the afternoon. The cause was not definitely located, but was apparently accounted for by the number and size of the tubercular mesenteric glands. The intestine was flattened and ribbon-like, except for small areas in which a little gas had accumulated. This was characteristic of the intestine from pylorus to sigmoid flexure.

The appendix was removed quickly and wound sewed up, after a thirty-minute operation, from commencement of anesthesia.

The patient lived two days after the operation, death being from exhaustion. The wound was in healthy condition and union advanced.

Discussion.

DR. HUBBARD reported the following case: A child sick two weeks with an obscure abdominal condition, manifested by vomiting and evidences of obstruction. An exploratory laparotomy was done. The intestines were found normal, Appendix normal. Two days after the operation the child died. At the autopsy it was found that the intestines were flat and there was considerable inflammatory exudate about the pancreas. Pathological examination showed a pancreatitis.

DR. W. RANKIN asked if there was any thickening of the bowel in Dr. Hotchkiss's case. Dr. Hotchkiss said there was not.

DR. TOMES suggested the possibility of there being a tubercular meningitis. Such cases present indefinite symptoms for a time, the brain symptoms not appearing at once, this child having died before the brain symptoms appeared.

DR. RANKIN mentioned a case which he had recently seen where there had been evidences of serious abdominal condition, vomiting, local pain and other symptoms which made it seem best to do an exploratory laparotomy. Intestines were examined though their entire length and nothing abnormal found, except a little pus in the peritoneal cavity. The patient died a few days later, and at autopsy a diaphragmatic abscess was found.

DR. HODGES suggested the possibility of there having been an obstruction high up in the intestine, near the pancreas, in the case reported by Dr. Hotchkiss.

REPORTS OF CASES.

DR. COLLINS reported the following case: A boy was struck over the eye by a ball. Following the accident was evidence of injury to the eye. The iris was pushed forward; vision was 20/200; there was evidence of a neuroretinitis. The condition did not improve under treatment. The tension was much diminished. Two weeks after the injury the boy developed fever of 102° F., vomiting, delirium and some evidence of trouble with the other eye. In a few days, under treatment, the symptoms began to improve. Pain disappeared; fever subsided; tension became normal; vision 20/70.

DR. POLAK reported the following case of post-puerperal psittacosis: A woman confined seven weeks

ago. From her own description it was evident that a portion of the placenta had been retained and sepsis had followed. She had been treated with formalin injections. Her symptoms had disappeared and she had been discharged cured and had returned home. Several days after returning she had a chill accompanied with pain in the right side, when Dr. Polak was called. When examined, there were fever, pain in the right lumbar region; right thigh was flexed and a distinct mass could be felt in the region of the right psoas muscle. Examination of the pelvic organs showed them to be normal. A mass could be felt above the pelvis. Patient is still under treatment.

DR. LUTZ reported a case of cerebral abscess. A boy who had had a discharge from the left ear for seven years had suffered for three weeks with pain in the head, fever and delirium. An operation was done and an abscess of the mastoid was found connected with the lateral sinus, from which $3\frac{1}{2}$ oz. of pus were evacuated. The opening was continued and pus was found in the left lobe of the cerebellum. He remained in the hospital a few days and was improving enough to encourage hopes of his recovery when his parents insisted on taking him home. The wound received little or no attention at home and the symptoms soon returned with greater severity. The patient lived four weeks after the operation, in spite of the bad after-treatment.

F. W. Langdon in an address, *Neurologic Progress and Prospects*, published in *The Jour. of the Amer. Med. Association*, July 18, 1903, under the heading of Reflexes, etc., remarks that we have heard so much of the "rest" treatment of neurasthenia since its introduction to the profession by Dr. S. Weir Mitchell, some years ago, that it is a trifle refreshing, to say the least, to find the pendulum swinging to its antithesis, the "work" cure. He quotes Weir Mitchell as calling attention to the fact that the motor element of ankle clonus is manifested through the soleus muscle alone, the gastrocnemius taking no part on account of its relaxed state due to its femoral attachment. The writer summarizes as follows: We may look for important aids to neurologic progress, to serum and other antitoxic therapy; to cysto-diagnosis and hematologic procedures generally; to organic and electro-chemistry; to prophylactic hygiene and dietetics; to a wise adjustment of function to structure; to special institutional measures and to better facilities for teaching neurology in general, including psychology, psychiatry and psycho-therapy.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed BROOKLYN MEDICAL JOURNAL, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotyps will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, SEPTEMBER, 1903.

MEDICAL NOMENCLATURE.

With the names of "new" diseases, which are from time to time of necessity added to the list of terms used to express the nature of human ailments, there is also a growing list of names which are coming, or have already come into daily use that are really the subdivisions of older terms, and which at the same time designate more accurately two or more pathological states, formerly covered by one term.

Thus Bright's disease, cancer and many other names have come to be used in a wide sense, or as covering certain groups of diseases, while terms indicating a closer approach to scientific accuracy and to some extent also the pathological findings, are in general use by physicians. This improved nomenclature is but an outcome of the extraordinary development of our science and of proportionally greater accuracy in diagnosis.

Changes in the nomenclature of diseases are, therefore, not to be deplored, but are to be regarded rather as the expressions of active progress in medical science. Nor is there cause for fear that new names will displace the old so rapidly that confusion will result. The mass of the profession is too conservatively inclined to permit this unfortunate result.

Changes in nomenclature are bound to occur; and these it is the duty of the physician to welcome, since they make for greater accuracy in diagnosis.

Nomenclature in medicine is not based on the law of priority, which prevails in certain departments of natural science. In botany and zoölogy, in which names of species are numbered by thousands, confusion could in no other way be avoided than by an absolute observance of this law, operative from a certain edition of works of the Swedish naturalist, Linné.

It is, perhaps, unfortunate that medical nomenclature is not more commonly expressed in Latin. The advantage is obvious in that the names of diseases could not then be confused in the process of translation. The names of some diseases in anglicized Latin in common use, for example, *otitis media purulenta*, express more of the nature and pathology of the disease and in a more concise and less clumsy phraseology than it is possible to express the same in English. It would be natural also that with an international nomenclature definitions of terms would be more carefully expressed and attended to.

It cannot, however, be contended that any scientific truths are lost because the names of disease are not universally expressed in Latin; nevertheless it has some advantages worthy of consideration.

It seems to the writer an error in nomenclature to append to the name of a disease that of its discoverer or describer; as, for example, the diseases called by the names of Graves or Hodgkin.

It is much better that the diseases should be designated by names which relegate them to the classes where they belong, and thus establish, as it were, their proper relationship to disorders of a similar nature.

Such terms as "clergyman's sore-throat," which occasionally receive serious consideration from writers of text-books are examples of bad nomenclature. Perhaps they, however, need no criticism, as they rightly, ordinarily perish within a generation.

The workers in special departments of medicine are finding need for a more extended and comprehensive nomenclature, and to this need the physician should lend his patience and consideration, even though at first sight he may consider the multiplication of names an unnecessary confusion.

So long as the multiplication of names avoids reduplication of terms for the same disease and aims at a careful designation of certain pathological conditions, it can lead only to the most desired good; namely, accuracy in diagnosis. It is in line with the need for accuracy in medical nomenclature, so evident to the later day physician, that attention is called to the pamphlets recently sent by the United States Census Office to practitioners of medicine in the United States on the "Relation of Physician to Mortality Statistics."

Care in the choice of medical terms to express the conditions encountered in the daily routine of work is fruitful of a clearer conception of cause

and effect. As an instance of the looseness with which medical terms are still employed, one finds in the pamphlet referred to that it is necessary to define the terms "typhus" and "typhus fever." These are interpreted by the authorities at Washington to designate typhoid fever unless the qualifying adjective is actually conjoined; to wit, exanthematic typhus.

Among the names of diseases therein stated as in themselves insufficiently definite when given as the cause of death, are paralysis, anemia, convulsions, encephalitis, septicemia. These and others are rightly held as insufficiently descriptive to be of value in compiling mortality statistics.

Methods and habits of stricter diagnosis are, we believe, directly aided by all efforts aimed at the accurate nomenclature of diseases.

OBITUARY.

JOHN F. GOLDING, PH.G., M.D.

DR. GOLDING was born in the city of Brooklyn, October 8, 1854, and died in the city of his birth, June 7, 1903. His father was John Golding, and his mother, Esther Mitchell. Dr. Golding was married to Emma A. Hanser, of New York



City in 1884. His preliminary education was received in the schools of this city. In 1873 he matriculated at the College of Physicians and Surgeons, New York, receiving the degree of M.D. in 1875. The Brooklyn College of Pharmacy conferred upon him the honorary degree

of Ph.G. in 1896. For a number of years Dr. Golding was a teacher in this college, from 1893 to 1901, being Instructor in the Theory and Practice of Pharmacy; Secretary of the Faculty from 1894 to 1901, and Assistant Professor in Pharmacy from 1900 to 1903. A few weeks before his death he received the appointment of Professor of Toxicology.

He was a member of the Medical Society, County of Kings from 1894 to 1903; the Brooklyn Medical Society, 1895 to 1903; Kings County Pharmaceutical Society, 1896 to 1903.

In his social and fraternal life he was an active member of Ezel Lodge No. 732 F. A. M., being master during the years of 1890 to 1891; Companion of Gate of the Temple Chapter No. 208, R. A. M., 1887 to 1891; member of U. S. Lodge No. 1739, K. of H., being a past Dictator, and at the time of his death held the position of Deputy Grand Dictator of the Borough of Brooklyn, and a past President of the Veteran Association of Brooklyn, K. of H. He was also a member of Ida Lodge K. and L. of H., and the DeKalb Avenue M. E. Church. His funeral was attended by a large number of medical friends and members of the different societies in which he held membership.

WILLIAM SCHROEDER, M.D.,
Secretary of the Hist. Com.

Meyer (*Med. News*, July 18, 1903) in his article, On the Pathology of Epilepsy, states that from an explanatory point of view, pathology, or scientific medicine, has added little, and it does not seem to give much immediate promise. He concludes his paper as follows: "The frequency of nervous lesions in epileptics is difficult to establish. The ordinary examination is too open to oversights, and must be very systematic in order to justify the verdict of negative findings. The great variation in the number of sclerosed cornu ammonis, diffuse gliosis, small foci of softening quoted by various authors, is certainly to a large extent an expression of variable attention, a picture of the psychology of investigators rather than of the distribution of facts.

2. Concerning the chemical investigations, the same psychological factor of personal interest is even more deleterious to a fair comprehension of the facts. The truism that observation of the rules of hygiene in every direction is a great factor in the management of epilepsy, is decomposed into innumerable currents of interests. Nothing short of unprejudiced and complete series of investigation will help us here, and also a much

greater conservatism with complicated methods such as the tests of toxicity, the results of therapeutics, etc.

3. All these conditions are difficult to attain except in sufficiently equipped institutions for which funds should be made available by the State, and by scientific corporations, so that they may work free of the need of sensational results, create a sound basis in clinical work and systematize the investigation according to methods which can be admitted as safe and fruitful.

To what extent this had best be carried is a question requiring much judgment. The one thing is certain—and every move in this direction should receive credit and encouragement—that institutions should be given a chance and should even be put under the obligation of doing justice to medical observation, of promoting the medical interests of its physicians and of laying a good foundation of experience such as the isolated practitioner can never get for himself. On such ground more delicate investigations will find a healthy soil."

PROGRESS IN OBSTETRICS AND GYNECOLOGY.

BY CHARLES JEWETT, M.D., SC.D.

WOLFFIAN RELICS IN THE OVARY.

It is well established that the ovary normally contains relics of the Wolffian tubules and that certain ovarian neoplasms take their origin from these tubules. Coblenz, Doran and Bland Sutton as long ago as 1880-1890 maintained that papillomatous cysts of the ovary and parovarian cysts are developed from these structures. These views have recently been elaborated by Bandler.

Wilhoser in a thesis (Zurich 1900) publishes the results of his researches in the histology of the human ovary. He found relics of the Wolffian body in the epoöphoron, the paroöphoron and the medullary portion of the ovary. Well defined tubules derived from the glomeruli of the Wolffian body appeared throughout a wide extent of the ovarian structure. W. affirms that they may proliferate. Teratoid growths in the ovary and broad ligament also originate in these relics of the Wolffian body.

Doran (*Journal of Obstet. and Gyn. of British Empire*, July, 1903) in connection with a review of Wilhoser's thesis calls attention to Harz's Contribution to the Histology of the Ovary in the Mammalia (*Archiv f. Mikroskop., Anat.*, 1883). Harz found perfectly developed ingrowths from

the Wolffian ducts throughout the entire ovarian stroma of the American monkey and other of the lower mammalia. Doran at about that time had detected entire Wolffian tubes in the epoöphoron of the human fetus.

RUPTURED ECTOPIC GESTATION VS. APPENDICITIS.

Legueu (*Bull. et Mém. de la Soc. de Chirurg. de Paris*, No. 31, 1902) discusses this question. Exceptionally the distinction is difficult. For example in ruptured tubal pregnancy scant evidence of internal hemorrhage, pain localized in the right iliac region or high temperature may lead to the erroneous diagnosis of appendicitis. As a rule, however, there are certain definite signs in ectopic gestation which may be relied upon. Especially important are absence of rigidity of the right rectus in ruptured tubal gestation, pallor, in marked contrast with the condition presented in appendicitis, and the tendency to syncope. In doubtful cases the absence of muscular rigidity, together with the presence of pallor and especially of syncopal attacks should make the diagnosis of ectopic pregnancy as against appendicitis.

FAILURE OF ATMOCAUSIS.

Zulauf (*Monatsschr. f. Geb. und Gyn.*, Aug., 1902) relates an experience which shows the uncertainty of vaporization of the uterus. The steam had been applied for intractable hemorrhage ten days after labor. Four days later the bleeding recurred, necessitating hysterectomy. It was then found that at several points on the decidual surface the epithelium had not been destroyed and the utricular glands were everywhere intact.

NECROSIS OF UTERINE FIBROID AFTER LABOR.

Stouffs (*Bull. de la Soc. Belg. de Gyn. et d'Obstét.*, vol. xiii, No. 2): A woman 30 years of age consulted Stouffs three months after delivery owing to pain in the lower abdomen. He found the uterus enlarged and presenting a sessile subperitoneal fibroid of three or four inches in diameter. On opening the abdomen no other tumor could be made out. The growth was easily enucleated. The tumor was exsanguinated and markedly softened, but not septic. The case affords a good illustration of one of the obstetric dangers that threaten the fibroid uterus. The blood supply of the neoplasm had been cut off by the uterine retraction following delivery.

CHOLECYSTITIS DURING PREGNANCY OR THE PUERPERIUM.

Potocki and others (*Am. de Gyn. et Obstét.*, April, 1903). Of interest in connection with the diagnosis of puerperal septic infection is the fact that fever in the puerpera may arise from infective lesions of organs remote from the uterus. In this article several cases of cholecystitis are reported, a number of which occurred during post-partal convalescence.

Potocki opened and drained the gall bladder eleven hours after delivery. A number of small calculi were found and there was purulent cholangitis. A secondary operation was required within a year for removal of the gall bladder.

Pinard has reported a cholecystotomy performed during the puerperium.

Hartmann operated successfully on the eleventh day post-partum. A single calculus came away later.

Malartic performed cholecystotomy on a patient of Doleris on the seventh day after delivery in the eighth month. The cause of the premature labor, and presumably of the cholecystitis, was typhoid fever. The woman recovered.

[The reviewer recently operated on a woman for empyema of the gall bladder one month after childbirth. The gall bladder could be distinctly felt as a tense cyst. Several ounces of purulent fluid were evacuated. The fistula closed within a few weeks, the patient making a good recovery.

In two recent cases of puerperal fever the cause was found to be nephritic abscess.]

UTERINE MYOMATA; WITH METASTASIS.

Schlangenhauer (*Wien. Klin. Woch.*, 1903) found five metastatic deposits in the lung and three in the liver of a woman who died shortly after operation for uterine fibroids. The secondary growths were found to be pure myomata. Five similar cases have been reported. In one of the latter the uterine tumor as well as the secondary growths was a pure myoma.

MAMMARY CARCINOMA; METASTATIC GROWTHS IN BOTH OVARIES.

Nadig (Thesis, Zurich, 1903). In a woman who died a few weeks after amputation of the breast for carcinoma, autopsy revealed a few secondary nodules in the liver and multiple cancerous deposits in both ovaries. The ovarian deposits presented clearly defined borders separating

them from the surrounding normal tissue. The occurrence of metastatic growths almost wholly limited to the ovaries is rare in cancer of the breast.

VESICO-VAGINAL FISTULA AS A COMPLICATION OF LABOR.

Kraus (*Wien. Klin. Woch.*, No. 7, 1903) reports two cases.

Case I.—Vesico-vaginal fistula resulted from a difficult embryotomy in contracted pelvis. The fistula was closed only after four operations. The anterior vaginal wall was replaced by scar tissue and no portio-vaginalis remained. Pregnancy occurred and the patient was admitted to the hospital after being two days in labor. The cervix on admission presented only a pin hole os. A Porro operation was performed, the mother making a good recovery.

Case II.—This case was similar to the first except that several attempts to close the fistula had all failed. The cervix contained scar tissue and was fixed high up to the right of the vaginal vault. The patient when admitted to the hospital had been in labor twenty-four hours. The woman was delivered by artificial dilatation of the cervix and podalic version. Profuse hemorrhage occurred, which was found to proceed from a laceration of the cervix running up into the right broad ligament. Other measures failing the abdomen was opened and the laceration sutured. The woman died from shock and loss of blood.

These cases emphasize the danger of dilating the cervix during labor in the presence of scar tissue. Incisions would offer no better prospect. In such conditions Cesarean section should be elected primarily.

PROGRESS IN OTOLOGY.

BY J. E. SHEPPARD, M.D., AND S. H. LUTZ, M.D.

MASTOIDITIS WITH DIABETES.

Bousquet has observed in the *Centralblatt für Ohrenheilkunde* the following symptoms in Mastoiditis with Diabetes. The pus discharge is thick and extreme, the secretion thick fluid. The process shows its rapid progress in the formation of sequestræ, deep burrowing and rapid involvement of apex and sinus. Operation should be undertaken at once except in the presence of acetone or ammonia in the urine. Large quantities of sodium bicarbonate should be given before and

after the operation in order to ward off a possible coma following anesthesia.

EAR DISEASES OF SCHOOL CHILDREN.

Eugène Felix in *La Presse médicale Roumaine*, presents his results of the examination of school children. Among 1,038 scholars 327 have ear disease, 342 had adenoids. He divided them as follows: Very good, 89; good, 251; fair, 441, and bad, 257. Out of 327 with ear disease only 12 knew of their trouble. In the first two classes he found 26.4 per cent. of ear disease, in the last two classes, 34.9 per cent. He concludes that examination of hearing, exploration of ear-canals and digital examination of naso-pharynx ought to be part of the examination for admission to the schools.

SHALL THE EAR SURGEONS OPERATE FOR BRAIN ABSCESS?

H. Gifford, in the *Western Medical Review* for January, says that according to Körner one-third of all brain abscesses are of ear origin. Von Bergman says the percentage is one-half; and if we add to these the cases where the abscess results from disease of the accessory nasal sinuses, the ear surgeon has a better opportunity of studying the clinical symptoms of brain abscess than any other class of practitioners. Körner has shown that nearly all otitic brain abscesses are in close proximity to the diseased portion of the temporal bone, therefore by opening the mastoid first, the diseased bone can be followed to the dura which lies nearest the abscess.

AURAL POLYPI.

Bellevue, in *Revue de Laryngologie, D'Otologie et de Rhinologie*, advises the injection of 5-per-cent. cocaine solution into the body of an aural polyp which is to be removed. With the increase in size following such an injection the polyp is more easily extracted and the author vouches for the fact that there is no pain at all from the tumor.

OTITIS MEDIA IN INFANCY.

J. L. Morse, of Boston, in the *Journal of the American Medical Association*, under the above title, notes the necessity of careful examination of ears in infants with fevers or in cases where the diagnosis is at all doubtful. He shows where meningitis, pneumonia, gastritis, worms, dentition, and, in fact, almost every acute disease was suspected and how all the cases were cured by careful attention to the ears and paracenteses performed in one or both ears for the relief of acute

suppurative middle ear disease which had not at all been suspected as being present. He relates nine cases in all of which the ear condition was evidently the cause of the sickness and in none of them was there any pain nor ear symptoms of any kind. The examination of the ear showed the necessity for interference in each case and the treatment of the ear condition cleared up the disease at once.

STATIC ELECTRICITY IN OTOTOLOGY.

L. Bayer and Alb. Pemmicko in *Journal Médicine de Bruxelles* concerning Static Electricity in Otology. In the electrical treatment of Menière's syndrome undertaken by the authors the positive pole was attached to a specially constructed electrode which was put into the ear, the negative pole being attached to the insulated stand. The length of the sittings varied from five to ten minutes. It was necessary to give 20 to 50 sittings to get a lasting effect. The dizziness was most quickly controlled, but the hearing which seemed better after the first sitting did not continue good. A very few cases received benefit, but in most cases the result was not what was expected. The authors conclude that much work must be done along this line on very carefully selected cases, to enable us to learn anything about the possibilities of static electricity in otology.

PROGRESS IN OPHTHALMOLOGY.

BY JAMES W. INGALS, M.D.

Irrigation in the Extraction of Cataract.

At the last meeting of the American Ophthalmological Society, 1903, Reik read a paper upon "Intracapsular Irrigation in the Extraction of Cataract." The paper was thoroughly discussed, and though some dissented, yet the majority of those who took part in the discussion were decidedly in favor of the procedure.

It will be remembered that the *Journal of the American Medical Association*, in an editorial, Jan. 17, 1903, called attention to the published reports of some of the ophthalmic surgeons of India. It was noted that Elliott, who, at the Government Ophthalmic Hospital at Madras, performed 500 cataract extractions in five months, used an irrigator to remove the cortical debris. Elliott considers this method "minimizes the need for subsequent capsulotomy."

Angelucci's Modified Operation.

Gutman (Report of Ophthalmological Congress, Heidelberg, 1902,) advocated the Angelucci

method of cataract extraction. No speculum is used to separate lids. Fixation forceps grasp conjunctiva in the vicinity of the superior rectus; upper lid is thus retracted during operation. Advantages claimed are that patient is saved annoyance of having speculum introduced, and also the point of fixation being near the point of section there is no tendency for the eyeball to rotate when the knife is used. Angelucci employs this method not only for cataract extraction but also for iridectomy, dissection of the lens and operation for secondary cataract. Gutman has used this method in thirty cases and concludes that it is simpler and easier both for the doctor and the patient.

At the last meeting of the American Ophthalmological Society, 1903, Gruening stated that he had operated in this manner ten or twelve times, and regarded this modification as a decided improvement.

(Even if speculum is used to separate the lids, quite an advantage is gained by having the fixation forceps above the cornea rather than below.

Trachoma and Cuprocitrol.

Bock (*Wochenschrift für Therapie und Hygiene des Auges*, Feb. 12, 1903,) tabulates a series of cases of trachoma treated with cuprocitrol. (Von Arlt.)

Without going into details, it may be stated that cuprocitrol seems to be most effective in the advanced stages of trachoma when the palpebral conjunctiva presents a scarred appearance and a moderate degree of pannus is present. Cuprocitrol has but little effect during the earlier stages when the granulations are abundant. Also this remedy is of doubtful value in those cases where extensive degenerative changes have occurred in the conjunctiva.

Cuprocitrol (von Arlt) is composed of citrate of copper and Unguentum Glycerini. The amount of citrate of copper used varies from five to ten per cent. Application does not cause pain; salve is given to the patient with instructions to apply to lids twice a day.

Von Arlt (*Wochenschrift für Therapie und Hygiene des Auges*, April 16, 1903,) summarizes the reports of more than twenty of his colleagues who have used cuprocitrol in treatment of trachoma. Among those who are using this remedy mention may be made of Prof. Hirschberg of Berlin and of Prof. Fuchs of Leipsic.

(It will be noticed that cuprocitrol is apparently most effective in that form of trachoma which is not usually benefited by surgical treatment, namely, the form or stage characterized by pannus and scars upon the lids.

Impairment of Vision Following Severe Hemorrhage.

Singer (*Beitrage zur Augenheilkunde*, 53 Heft, 1902,) reports 174 cases. The following were some of the sources of the hemorrhages which occasioned disturbances of vision: Hemorrhage from the stomach and bowels, 76 cases; from the uterus, 62 cases, 42 of which occurred during parturition; only six cases were subsequent to wounds. In a number of cases loss of sight occurred at time of the hemorrhage, but in a majority of cases the eye symptoms did not appear until a period varying from twelve hours to ten days after cessation of hemorrhage.

Ring Abscess.

Fuchs (*Von Graefe's Archives für Ophthalmologie*, LVI. Band, I. Heft,) points out some of the differences between ulcer serpens and ring abscess. Ulcer serpens usually develops from superficial injuries of the cornea; ring abscess follows perforating wounds or may occur independently of any traumatism. Ulcer serpens extends from the center of the cornea towards the periphery; ring abscess proceeds from the periphery toward the center. Ring abscess always goes on to panophthalmitis.

BOOK REVIEWS.

AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY: Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs, and Text-Books of the Leading American and Foreign Authors and Investigators, Collected and Arranged with Critical Editorial Comments, under the General Editorial Charge of George M. Gould, M.D. Medicine. 691 pp., 5 pl. 8vo. Phil., N. Y. & Lond., W. B. Saunders & Co., 1903. Price: Cloth, \$3.00; Half-Morocco, \$3.75.

This is a strictly American book, authors and publishers and style. The arrangement of topics is as usual alphabetical and the type is excellent. Illustrations are sufficiently numerous. No words of commendation can be too strong for the excellent work of the Saunders Co. in the matter of medical and surgical texts, and the present volume is fully up to their high standard.

W. S. HUBBARD.

INTERNATIONAL MEDICAL ANNUAL. A Year-Book of Treatment and Practitioner's Index. 1903, Twenty-First Year. No. xi, 739 pp., 33 pl. 8vo. N. Y., E. B. Freat & Co., 1903. Price: Cloth, \$3.00.

This compact manual for 1903 is even better than its predecessor in point of interest. The illustrations are numerous and well chosen. The list of contributors is a worthy one.

Under the head of Therapeutics—the first part of the book—appear two articles of more than temporary interest, one on "X-Rays High Frequency Currents and Lights Treatment," by Jno. Macintyre, M.B., C.M., F.R.S.E., and the other on "Electro-Therapeutics," by A. D. Rockwell, A.M., M.D. The careful and common-sense selection from among the vast number of preparations that are put forth of those remedies which are described under the head of Therapeutics, attests the skill of the editor of this department, Dr. Hare.

The second half of the book, devoted to New Treatment, is very full of reference to up-to-date methods in diagnosis and treatment, both medical and surgical. The volume, on account of its handy size, will meet the same generous reception that it has always had. The index is well made.

W. S. HUBBARD.

PRACTICAL POINTS IN NURSING. For Nurses in Private Practice. With an Appendix Containing Rules for Feeding the Sick; Recipes for Invalid Foods and Beverages; Weights and Measures; Dose List, and a Full Glossary of Medical Terms and Nursing Treatment. By Emily A. M. Stoney. Third Edition, Thoroughly Revised. Phil., N. Y. & Lond., W. B. Saunders & Co., 1903. 458 pp., 8 pl. 8vo. Price: Cloth, \$1.75.

This deservedly popular manual for the use of nurses is one of the best of its kind. It covers more ground than its title would indicate. It contains a great deal of information, including chapters on anatomy and physiology, a description of most of the ordinary diseases and emergencies and their treatment, or at least some points in their treatment. The appendix contains a variety of recipes for the preparation of foods for the sick, a dose list, an extensive glossary of medical terms and a good reference index. It is written in a plain style, and the statements bear scientific scrutiny. It is a safe book to recommend to the trained or untrained nurse.

E. H. BARTLEY.

CARE AND FEEDING OF CHILDREN: A Catechism for the Use of Mothers and Children's Nurses. By L. Emmett Holt, M.D., LL.D. Third Edition, Revised and Enlarged. N. Y. & Lond., D. Appleton & Co., 1903. 149 pp., 2 pl. 12mo. Price: Cloth, 75c.

This little catechism of questions and answers is intended to impress the essential points in the general management and feeding of infants. The questions and answers are concise, simple and clear. The information is limited to the answering certain selected questions, and as it contains no index, it is not always easy to find the information desired. Many questions which a mother might ask will not be found, although it must be admitted that the questions are well selected. The section on infant feeding is excellent, from the view point of clearness and simplicity. No mention is made, however, of the use of whey as a diluent, or of the importance of differentiating between casein and albumin. The author considers the total proteids only, and therefore reduces them in the early weeks to one-fifth that found in average human milk. This is certainly not the best that can be done even in the home. Dr. Holt does not advocate the use of cereal gruels in the feeding of young infants. Perhaps he has omitted some of these considerations on the ground of a desire to simplify the directions, but it would have been better to have mentioned them as alternative methods. With these minor defects, the book can be commended.

E. H. BARTLEY.

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, OCTOBER, 1903.

No. 10

NOTES ON URINARY CASTS.

BY Z. TAYLOR EMERY, M.D.

Read at a Meeting of the Pathological Society, April 9, 1903

LET it be understood that this paper assumes, what is, I believe, generally allowed, that the hyaline cast is the basis of all tube casts. This by way of introduction.

The substance of which hyaline casts are formed is not proteid, but some derivative of one; it is not identical with any of the proteids with which we are familiar, such as acid albumin, albumin, albuminates, globulin, fibrin, mucin or peptone. Ravida suggests that casts are the products of secretion by epithelium lining the urinary tubules, and his views are strengthened by the experiments of Pollok and Torok, thus accounting for their presence in the absence of severe renal disease. Von Jaksch, too, points out that it must be borne in mind that the experiments of Ribbert, made some years ago upon animals, point to the conclusion that hyaline casts may result directly from the exudation of albumin within the tubules.

Ogden gives the three theories which have been advanced as to their probable nature and mode of formation.

I. They are composed of coagulable elements that have transuded into the renal tubules through pathological lesions of the latter, and have there solidified, to be later voided with the urine as molds of the tubules.

II. That they consist of a secretion of the pathologic epithelium lining the renal tubules, this secretion solidifying to form molds or tube casts which are later forced out by urine.

III. That they are the direct result of the disintegration of the renal cells, whose products become formed into casts of the tubules in which they are formed, and being forced out by the urine make their appearance in the urinary sediment.

He is of the opinion that the first theory is the most plausible, or at least that it is applicable to the nature and mode of formation of most of the casts found in urinary sediment. Each of these

opposing views is championed by a long array of talent.

With the one party the presence of hyaline casts does not necessarily imply a pathological condition, while another as stoutly maintains the opposite.

A careful survey of the whole field will enable us to see that in many instances each class of writers is right, but not always.

The clinical significance of the presence of hyaline casts is open to many qualifying conditions and circumstances. They may be formed in the urine of those who are subject to passive congestion, irritable conditions of the urinary tubules, or inflammatory involvement of the kidneys.

In the first class we may find the condition dependent on weakened or disturbed circulation, as in middle-aged men who have been living a strenuous life.

In the second class may be found those cases which have been subject to altered conditions of the blood—to irritating substances conveyed by the blood, such as products absorbed from stomach or intestinal surfaces, due to indigestion, the presence of toxins, and changes due to defective metabolism.

We should also mention the altered condition of the blood in all febrile states, toxins from the exanthemata, and from other bacterial diseases.

Often insensibly running from a condition of irritation into a more intense condition, we have an inflammatory process with resulting exudation, change of structure, or destruction of substance.

If the passive condition be long continued, we may find hyaline casts, either with or without albumin. If these casts are small or medium sized and not accompanied by albumin, we need not consider them of special significance, particularly if they be few in number, or occurring in men over 45 years old.

But should the casts be large, or even medium sized and in large numbers, the condition should be considered as calling for further examination and careful inquiry as to the history of the patient, his habits, especially as to eating and drinking, his methods of work, as well as the possibilities of continued high pressure from any cause.

Small or medium hyaline casts are formed in

the unaltered tubule and washed out with the urine. If, however, the epithelium of the tubules becomes loosened from its matrix and adheres to the cast, the latter appears in the urine as an epithelial cast. A new hyaline cast formed within such a denuded tubule naturally has a greater diameter, and when carried out indicates the condition of the tubule from which it was derived. Epithelium blood, or broken down particles of either, as well as other granular detritus may adhere to or become incorporated into hyaline casts either within the tubules, in the pelvis of the kidney, in the ureters, or even in the bladder.

The appearance of hyaline casts containing granular material does not always indicate an active destructive process within the kidney. We, therefore, find it necessary to ascertain the complete clinical history of every person examined for urinary deposits. Chemical analysis is equally necessary.

Small hyaline casts in the urine of a person of forty-five years or more without the presence of albumin have little significance. Small hyaline casts together with the presence of albumin in the urine of a young athletic person after exhausting or long continued severe exercise also have little significance.

Large hyaline casts in the urine of middle-aged men of strenuous business habits, if long continued, may be the early sign of interstitial nephritis. If in addition to the above there is a continued trace of albumin, it should excite our suspicion to the point of certainty, especially if the daily output of urea is much diminished.

For the past five years I have had under observation a gentleman of full habit, strenuous life and with large interests at stake, living in Texas. Albumin and hyaline casts were discovered in his urine occasionally, and although he was examined by several physicians from time to time and always pronounced sound, I never failed to find both albumin and casts whenever he came to New York. It was a puzzling case, and I referred him to Dr. Keyes for careful examination and advice. He confirmed our views and advised a careful diet and regimen, under which he has continued to be active in business and gives promise of many years of useful life, in spite of the existing chronic interstitial nephritis. The long railroad journey to New York usually causes marked increase in both his albumin and casts.

The appearance of epithelial, blood or granular casts in urine is of sufficient gravity to demand a careful search for their number and continuance, for the average chemical constituents, by systematically conducted chemical and micro-

scopical examinations. The clinical history of the subject of inquiry is of the utmost importance.

Dr. Curtis relates an instance occurring in his experience, where a fellow medical director some twenty-five years ago voided urine in which were found pus, albumin and granular casts. A grave prognosis was given, but the doctor continued to enjoy good health, the abnormal elements disappeared in a short time and he is to-day in good health. What happened in this case was probably the formation of a localized infarct, its breaking down and discharge through the pelvis, ureters and bladder, and subsequent healing of the small cavity with the formation of an eschar.

We have all seen the urine of patients suffering with tonsillitis, pneumonia, typhoid fever and many other acute diseases contain albumin and casts, and no detrimental after effects obtain. Yet acute Bright's disease intercurrent with pneumonia is a usually dangerous complication.

Bacterial casts are occasionally seen and are of importance, whether their origin be from the bladder or from blood in circulation. Waxy casts are frequently of grave import. They are found in acute and chronic nephritis, in contracted, granular and amyloid kidneys.

From the Life Insurance standpoint, where it is impossible to obtain twenty-four-hour specimens which can be identified as such, the examiner is obliged to depend on the inspection of a series of specimens taken at intervals during several weeks. Border-line cases require extreme care, patience and a lively interest in all that can be learned about the applicant. Extreme care in preparing a specimen for examination—five or six ounces of urine should be filtered, the bottom of the filter punctured and more urine washed through it into a centrifugal tube and then settled by centrifugation. All afternoon specimens, if obtainable, should be used promptly after being voided. Tube casts can be found by artificial light, if from a Welsbach burner, but the chemical analysis should always be made in good day light.

Rolleston and Jex-Blake (*Brit. Med. Jour.*, July 11, 1903) in a paper entitled "On the Occurrence of Vomiting During Rectal Alimentation" write that they have collected and analyzed 171 consecutive cases of gastric ulcer treated in St. George's Hospital during the past two and a half years, 154 of them occurring in women and 17 in men. They state that they have been unable to trace any connection between the nature of the food given by the rectum and the occurrence of vomiting.

A REPORT ON PRESENT METHODS OF ADMINISTERING GENERAL ANESTHETICS IN THE BROOKLYN HOSPITALS, WITH COMMENTS.

BY A. F. ERDMANN, A.B., M.D.

Read before the Medical Society of the County of Kings, June 16, 1903.

SINCE the time, five years ago, when Dr. Hotchkiss read his paper on the "Practical Administration of Anesthetics,"¹ a period within which the subject was not presented to the Society, surely there have been such and sufficiently noteworthy changes in the methods of inducing general anesthesia that a view of present conditions is at least interesting; and if one may judge from the repeated reference in the periodical literature to the necessity for the raising up of a class of skilled anesthetists, it is no less important to consider this subject. Moreover, it is to be hoped that some gain will be made by this opportunity to present fairly some diverse views and to give the general practitioner some idea of what is being actually done to his patients, no less than by showing it necessary for the anesthetist himself to review his own position and to readjust himself, in so far as he may have overlooked them, to those present best methods, ways and means which are so integral a part of the proper conduct of any anesthesia.

Except in one particular the paper will be limited to those anesthetic agents which are inhaled. This exception is a brief reference to hypnotic means. Spinal analgesia is purposely omitted because the subject is most closely related to surgery and is really a surgical procedure.

The first place in this report must be given to ether, for ether is more used than any other agent. In one hospital, St. Peter's, nothing else is used; at Seney in about 90 per cent., and in others in a varying proportion of cases. Chloroform is used for 30 per cent. of the operations at the German Hospital, and probably less, except it may be at St. John's, in the other hospitals. Then come the various better known solutions: A.C.E., ether and chloroform, "Post's." Least of all are used the Schleich solutions, the No. 3 and anesthol, which are as yet only being experimented with in the hospitals. Bromide of ethyl and ethyl chloride are used more or less extensively by only a few individuals. Nitrous oxide gas is rapidly becoming better known. The latest agent to be placed upon the market is narcotile,² the bichloride of methylene, which Dr. McCreery has used.

I take the liberty of placing all but the last mentioned of these fluids* into your hands that you may have an opportunity of noticing in particular the physical properties of the less known and comparing them with those two familiar to all.

Of ether, it may be said that the most common feature observed in its administration is the use everywhere of one form or another of the Allis inhaler. But here close resemblances cease, for there are about as many methods of exhibiting ether as there are administrators. Even the so-called "drop" method, demanded as it generally is by the surgeon, and commending itself because of its usefulness, is not often seen. To be sure, many internes pretend to use it, but few really do so either consistently or all through an operation. Indeed, I can recall only two instances in which this was done: once at St. Peter's by Dr. Maguire, and again at the County Hospital by Dr. Pugh. Dr. Hatfield, at the Williamsburgh Hospital, was an able defender of the method and suggested that the fluid would drop easily from a can if the opening was made small and then a short gutter indented in the tin cover. I regret that I did not have any opportunity of seeing him anesthetize. In the vast majority of cases the temptation to multiply the drop was yielded to, especially in the beginning of the narcosis. On the whole the impression was made that the most satisfactory anesthesia is more practicable when the drop method is not strictly adhered to throughout the operation. This is the theory of Dr. Deutsch at the Eastern District Hospital. He begins by pouring repeatedly several drachms at once of the "Post" solution upon the inhaler until the change can be made to ether without exciting the faucial reflexes, and then continuing in quantity amounts with the ether itself. Indeed, it is quite impossible to follow the "drop" method with an Allis inhaler when the patient is in the Sim's position. To remedy this inconvenience and for other reasons Dr. Fowler devised this inhaler which can be used in any position. It is an Allis shape, but larger, hollow and closed at one end. Its further peculiarity lies in this slit at the closed end and an internal gutter just below. A ball of hair is stuffed under the slit, and if desired the inhaler is completed by an encircling towel. The latest design has a notch for the nose, and a slit and gutter on both sides.

Once the "drop" method is ignored there is

* Mr. Brown of Bolton's has kindly computed for me that these agents cost ten cents an ounce, except "Post's," ethyl chloride and bromide of ethyl which cost respectively twenty-five cents, one dollar and fifty cents. So that ether is by all odds the most expensive because so much more of it is used than of anesthol, for instance.

some uniformity of practice in the continuance of an ether anesthesia. The administrator simply varies the amount of any one exhibition according to his interpretation of the necessity of his patient. When once the respiratory rate is determined one can easily renew the supply at the proper interval and so maintain a smooth course of the etherization. Only once or twice was any reversion to the older type of conduct observed. These were alcoholics, and even they could have been bettered if it had not been attempted to give them plain ether first. A much preferable way is to begin with a less irritating vapor such as anesthesol which is elegant for just such cases.

It is the practice at the German, Seney and on some of the services at the Brooklyn Hospital to begin the anesthesia with bromide of ethyl; or else, as in several other hospitals also, to induce first a nitrous oxide anesthesia. At St. Catherine's Hospital, Dr. Kennedy prefers to use chloroform before the ether; at St. Mary's also, this is a frequent practice; at the Eastern District Dr. Blaisdell has used the "Post A.C.E." for a number of years; at the Cumberland Street Hospital Dr. Burnham obtains satisfactory results with a solution of equal parts of ether and chloroform. The author's personal preference is to use the Schleich solutions either alone or preceded by ethyl chloride. Dr. Dove at St. John's has had a large measure of success with the simple dental gas inhaler. One of the most talked of and yet but little used inhalers which is designed principally to improve the first minutes of an anesthesia is this Bennett combined ether and gas inhaler. Strange to say, only the Long Island College, Seney, and the German Hospitals are supplied with this *facile princeps* apparatus. Its name describes it. The ether chamber is first charged and closed, and gradually opened only after the patient is rendered insensible by the nitrous oxide gas. The gas attachment is then removed and one of three courses followed: either the whole apparatus is replaced by an Allis or other inhaler, or the ether chamber is continued in use, being recharged when necessary, or else the accessory bag is slipped in place of the gas bag and the patient kept under by a "close" method. Dr. Wm. Jewett, in a personal communication to the writer, said that the transition from gas to ether can easily be accomplished even with the ordinary gas apparatus. Handier than either of these is this ethyl chloride mask, as Ware has simplified it. Bromide of ethyl is used on any inhaler which shuts off the air supply. I have found my own cornucopia inhaler to answer very well for this.

At the German Hospital the Bennet inhaler closed is used; at the Seney the Fowler inhaler is converted into a closed one by merely placing a finger over the slit. Now these means do act well and anyone who has never tried them has a real pleasure yet in store for him.

Concerning chloroform, less can be said for it is less used. And yet, speaking generally, more chloroform is employed than is commonly supposed. The anesthetists themselves, with few exceptions—for instance, at the Williamsburgh and at St. Peter's especially, where ether is the first, last and best all the time—most of them are not only not afraid of chloroform, but are willing to use it more extensively. At one hospital the operator said that he did not use it more only because the sentiment in the profession is against its use. Another operator for the same reason uses ether instead of his preference chloroform. However, to some extent chloroform is used in most hospitals when indicated; and in some the indication does not have to be marked. The Esmarch inhaler is most commonly employed. Dr. Stuart has used this Junker at the Brooklyn Hospital. Dr. Brophy uses his own two bottle inhaler at the Bushwick Hospital. These are all open methods. The nearest approach to a close method is the practice in vogue at the Cumberland Street Hospital of placing a folded towel around the edge of a flannel-covered Esmarch mask in such a way that all the air is excluded except that which is admitted through the top of the mesh. Upon this mask equal parts of chloroform and ether are dropped.

Dr. Blaisdell has been very well satisfied for some time with the so-called "Post" solution: equal parts of alcohol, chloroform and ether. The patient receives this either throughout the entire course of an operation or simply antecedent to the use of ether. Dr. Jewett, Dr. Westbrook and Dr. Pool especially have had considerable experience with the ordinary A.C.E. and with the Schleich solutions³. The author himself, during the course of his connection with Dr. Skene's work, and ever since the time when the Schleich solutions⁴ were introduced into New York by Maduro and Willy Meyer has used them almost exclusively, and still prefers them, especially the anesthesol⁵, to all others. A number of men have been using ethyl chloride⁶ as a general anesthetic. Probably Dr. Clarke of the Bushwick Hospital has been more enthusiastic than any one else. Dr. Rankin has had some experience with it. The internes of the Kings County Hospital have seen it demonstrated for Drs. Maddren and Barber,

and Dr. Delatour has had its use shown at the Long Island College Hospital. This is Ware's apparatus⁷ and the Kelene container which he recommends, and this is the antidolorin tube, concerning which many have no doubt received some literature. Bromide of ethyl is used chiefly in Dr. Fowler's services. Inasmuch as the doctor is preparing a report on its use only this mention will be made of it now that it has been used successfully many times and has evidently won a place for itself among anesthetists. Nitrous oxide gas is not used generally for long continued operations. Yet Dr. Dove at St. John's has had wonderfully good success with it. Many times dressings are done with it, and on several occasions anesthetics of over an hour's duration have been maintained. A delightful method, surely, when suited to the patient and the operation.

In the preparation of the patient for the narcosis there is a common mode of procedure. This is true also of the after-care. Practices differ, though, with regard to the employment of preliminary hypodermatic stimulation or narcotization. Generally the patient receives some stimulation only when real necessity makes it imperative. At the Seney, however, in both Dr. Pilcher's and Dr. Fowler's service it is the routine practice to give caffeine gr. i. by the mouth and strychnine sulph. gr. $\frac{1}{30}$ hypodermatically. At St. Peter's and at the Williamsburgh it is the rule to give morphia and atropia some time before the ether. On some of the services at the Kings County Hospital and on Dr. McNaughton's service at the Eastern District this is also the case. For the vomiting various treatments are practiced: lavage, sips of hot water, the actual hypodermic of morphia, a pill of a grain each of camphor, caffeine and acetanilid or sometimes copious draughts of water.

As to anesthetic sequelæ the author is unable to offer any satisfactory report, or to present any reliable statistics. Probably if patients were handled more carefully and bandages could be placed more judiciously there would be less than the 70 per cent. of cases of vomiting which one hospital reports. And if the patient's head and chest were better protected, if there were less exposure to draught in the operating room and in corridors the anesthetic would not have to be the scapegoat for the surgeon's thoughtlessness or the carelessness of attendants; and if some operators would only be a trifle quicker and the time of operations be more often cut down to an hour, may be some kidneys would not be damaged and perhaps the patient would escape death in a ure-

mic convulsion. Equally unsatisfactory is the result of inquiries concerning anesthetic deaths. No one likes to talk about them. It was only casually that the author learned of five deaths under chloroform, three under ether and one under nitrous oxide during the past year. Perhaps there have been twice as many.

There is this to be said about the record blanks of the anesthesia which I now present to you. Their value is far too lightly appreciated. This criticism is especially true in the case of those hospitals in which no record at all is kept. How many of these there are any one may count for these blanks are all that can be obtained. Upon what is to be built the further structure of the science of anesthesia if not upon the careful and even painstaking record kept by the practical anesthetist. Not the opinion of the surgeons who will eventually leave the control of the administration of the anesthetic to the specialist in anesthesia, but the recorded experiences of the many who are skilfully observing, and who, may it be hoped, will one day here in Brooklyn meet in a section of their own, and will collate and mutually consider the facts of anesthesia, these records must be the foundations. But can the anesthetist attend to this? Assuredly not, sometimes, when the case is a difficult one, and yet these serious elements in any narcosis are just the very ones which ought to be observed and recorded. If he can not do it alone why not then give him an assistant upon whom that duty will fall? This is the custom in some New York hospitals and I have occasionally here seen a nurse attempt to do that work. If every hospital had that visiting anesthetist about whom so much is *talked*, this matter would take care of itself. In the meanwhile it is the interne's privilege to help himself. Even if the hospital does not encourage more than only the merest record taking, or not even that, he still may and should persuade himself for his own sake to keep a record of all the phenomena of the anesthesia.

Using the Methodist Episcopal blank for a basis, as that is the best one of them all, it could readily be completed to include a space for the amount of anesthetic used at any time during the operation: the anesthetist would then constantly strive to lessen that amount at each stage; the rate of respiration might well be noted: he would learn then to associate that with the pulse beat and distinguish any serious arrhythmia; it would be useful to notice any cyanosis and its possible relation to other phenomena; and certainly if he had staring him in the face repeated records of

vomiting he would wish to avoid that unpleasant feature whenever possible. All these matters cannot be constantly noted and the records studied without being of inestimable value to the anesthetist. If, in addition, the hospital records of the after condition are well kept, then any investigator has at his hand sufficient data for comprehensive and satisfactory study, and the science is enriched by just so much definite knowledge.

This is perhaps the best opportunity to mention a novel form of anesthesia. Although but four cases are on record with 75 per cent. of failures, yet the fact should be stated that recent essays have been made to obtain a state of surgical anesthesia by means of hypnotism. At St. Catherine's Hospital a professional hypnotist failed entirely in one instance and would have succeeded in a second but for an untoward noise in the adjoining hall. It is said that the patient was already anesthetic to ordinary sensory imitations but was unfortunately accidentally aroused before the experiment could be successfully concluded. At the Bushwick Hospital this same gentleman failed in a similar attempt. But another hypnotist actually held a patient surgically anesthetic until the time on the following day which had been set for the operation. I am indebted to Drs. Kennedy and Clarke for this information.

Permit, if you please, the following concluding comments: First, as to some objectionable practices seen entirely too often. How many internes test the conjunctival reflex by placing the finger or even the thumb directly upon the cornea. Why not test the reflex on a scleral portion of the conjunctiva, or better yet, as I saw Dr. Eltyng do, gently blow into the eye? Again, is it necessary to keep the head persistently vertical? Is it not better, when possible, to turn the head to one side so as to help the saliva and mucus and the tongue as well, gravitate into the forward part of the mouth? Further, it does not seem to be a generally recognized fact, as Lawrie pointed out, that the degree of flaccidity of the masseters is a good sign of the depth of the narcosis. Such is, indeed, the case. And once more, it is a common sight to see a towel folded over the eyes. Is it no advantage to constantly see as much as possible of the face if the facial aspect so often gives the first warning? The motility of the iris, the play of the ocular muscles, the color of the nose and of the ear—to disregard these is by no means wise. Again, does it matter whether the patient's arms are back over his head, or at his side, or lying heavily upon and hindering the movements of the chest. Might not more attention be paid to plac-

ing the patient so that the respiration is least embarrassed and to giving the anesthetist the opportunity to conduct his part of the case with most safety to the patient and with some comfort and convenience to himself.

In the second place, what a pity that some anesthetizing rooms are so dark or so close to an elevator, or that a large gong is sounded right at the door, or that it is merely a corner of the main corridor, or that the same room is used for a linen closet, maybe, or a sterilizing room, or for a passageway even. These annoyances do not conduce to best work.

And finally, a word about the anesthetist himself. Only in the smaller hospitals is a new interne appointed anesthetist except at the Brooklyn Hospital, and here Dr. Buist, the visiting anesthetist, gives him practical instruction for several weeks. Dr. Hotchkiss is the visiting anesthetist to St. John's Hospital and has charge of the work there. At St. Peter's and at the Memorial the anesthetist holds his position at his own pleasure. I met only one careless anesthetist and only one ignorant one. All the rest were wide awake, watchful men, alive to their duty, and, if perhaps inclined, some of them to consider their position an inferior one and to be vacated gladly as soon as possible, yet on the whole, men who well deserved the hearty support and commendation of their visiting surgeons.

Until each hospital has its visiting anesthetist these are the men to whom you entrust your patients. It is the privilege of every practitioner by manifesting his keen interest in what they are doing, and of every surgeon who now is the chief of their service, as well as of every anesthetist specialist who has the opportunity of assisting them by skilful instruction and faithful example, to lend a hand in improving all the anesthetic service in every hospital. Then some day all will feel that everything has been done that can and should be done to place the science of anesthesia upon its proper plane with the other cognate sciences whose aim is to make man well.

REFERENCES.

1. Brooklyn Medical Journal, March, 1897.
2. Lancet, April 18, 1903.
3. Brooklyn Medical Journal, Nov., 1898.
4. Brooklyn Medical Journal, May, 1899.
5. Journal American Medical Association, Feb. 28 and Mar. 7, 1902.
6. Journal American Medical Association, Nov. 8, 1902.
7. Medical News, Aug. 3, 1901.

The Jersey City Board of Finance has appropriated \$200,000 for the erection of a new city hospital, the money to be secured by an issue of bonds, to be taken by the Sinking Fund Commission, so that none of them will be put on the market.

THE NATIONAL FORMULARY.

BY W. N. BELCHER, M.D.

Read before the Medical Society of the County of Kings, June
16, 1903.

IN bringing to your attention, this evening, the subject of the National Formulary, I beg your indulgence with me, for I am simply acting as a poor representative of one whose eloquence is familiar to you all, and who can do this subject the justice it deserves, which, I regret to say, I cannot.

Dr. Bartley, whose intention it was to present this matter to you to-night, was obliged to leave town, and, before going, he asked me to represent him.

Nearly ten years ago Dr. Bartley called the attention of the members of the Medical Society of the County of Kings to the existence of the National Formulary, and at that time likewise exhibited a number of medicinal preparations made up after the directions laid down by the Formulary, which preparations were passed around for general inspection, and afterwards deposited upon the mantle-piece of the old meeting-room in the Bridge street house, so that members could examine and sample them at their leisure. They were there for several months. Doubtless many present here to-night will recall the circumstance.

Dr. Bartley's remarks at that meeting, together with the discussion were published in the *BROOKLYN MEDICAL JOURNAL*, and may be found in Vol. IX, No. 4, page 219, the issue of April, 1895, the paper having been presented at a meeting the previous autumn.

What was said of the National Formulary at that meeting is true to-day, and it is quite as worthy of your attention now, even, in fact, more so, than at that time.

At the present day the office of the average practising physician in the large cities is made the repository for samples of medicinal preparations without limit, many of them valuable, and the most of them attractive, elegant preparations. A great number of these preparations are put up by manufacturing chemists and drug houses of repute, and, in their way, many of them have proven reasonably satisfactory in the hands of the profession, and are extensively prescribed.

The majority of these preparations are reliable, and many of them have affixed to the label on the package or bottle, the formula of the compound.

Quite a number of them, however, do not, or at least, if it is written upon the label, the formula is so complicated that writing for a similar preparation on your ordinary prescription blank becomes most unsatisfactory, and you feel obliged to write for "Somebody's Syrup of this," or "Elixir of that," when you really prefer not to do so.

I do not wish to go on record as being an advocate of fixed formulæ or stock mixtures for use in the practice of medicine. I am opposed to them. No remedy or combination of remedies should ever be prescribed without a distinct indication for each and every agent that the remedy contains. You must know wherein the physiology is disturbed, and what a given drug or drugs will do to correct that condition before you can intelligently prescribe for anybody.

You must know drug action in order to make the remedy suit the condition, and the use of a well-thumbed index of diseases with appropriate mixtures for use in their treatment set opposite to them, may be practising medicine, but it comes pretty nearly making a farce out of a science.

On the other hand, however, there are many well-known formulæ that have been in use for years, are old friends and worthy of anybody's attention. The great majority of these are unofficial, and here is where the National Formulary comes in, and that reminds me that I had better get down to business or Dr. Bartley will regret he did not ask someone else to act for him.

There are doubtless many physicians who have never heard of the National Formulary, although it is fair to assume that there are none who do not know of the United States Pharmacopœia and of the United States Dispensatory.

It may be well for me to give a brief history of the National Formulary, and in doing so I will quote Dr. Bartley's article:

"The National Formulary was originally suggested by pharmacists of New York and Brooklyn, and has since become national. In 1883 a committee of five gentlemen was appointed from each of the three following organizations: The New York College of Pharmacy, the German Apothecaries Association of New York, and the Kings County Pharmaceutical Society, to confer and form an unofficial formulary of standard preparations to compete with those put upon the market by certain manufacturers.

"After three years' work, during which time this committee of fifteen held weekly meetings, they published the New York and Brooklyn Formulary in 1885.

"This was sent to the members of the medical and pharmaceutical professions of these cities and elsewhere.

"The work was highly commended by the National Pharmaceutical Association, whereupon the committee presented the copyright to that Association.

"The American Pharmaceutical Association appointed a committee, including the former committee, to revise and enlarge it, and prepare a National Formulary.

"After between three and four years, the National Formulary was published in 1888.

"An epitome of this was sent to the physicians of New York and Brooklyn, giving the names of the preparations, what they contain, and the strength; that is, the quantity in one teaspoonful.

"In the present form the National Formulary represents the best efforts of the pharmacists of America, and has received the highest praise in foreign lands.

"The American Pharmaceutical Association has continued a standing committee to keep it up to date.

"These preparations can now be had in any part of the United States or Canada (or, in fact, in almost any part of the world where a copy of the United States Dispensatory is to be found, for it is now included in every issue of that great work, being accorded a special section in the book), and we can expect to find them of uniform composition everywhere; moreover, we can know what we are prescribing.

"They are not proprietary or patented, and are not sold at exorbitant prices."

I will pass around two or three copies of the Epitome of the National Formulary presented by the Kings County Pharmaceutical Society.

I regret that I have not a copy to put into the hands of everybody present.

This epitome was compiled by Prof. Diehl, of Louisville, Kentucky, who is the Chairman of the Committee on National Formulary of the American Pharmaceutical Association, which met in September last, at St. Louis, I think.

This epitome contains an introduction addressed to the Medical Profession of America, and, as the objects and advantages of its use are laid down so concisely in its text, I will take the liberty of reading from it, inasmuch as I am unable to give each of you a copy that you may read it for yourselves, and likewise to impress upon you all the importance of giving this matter serious consideration.

"The first edition of the National Formulary

was published by that Association (the American Pharmaceutical Association), in 1888 as the outcome of deliberation, covering a period of many years, to secure uniformity in formula, composition, appearance, and consequent therapeutic effect, in the case of a large number of preparations not recognized or embodied in the official standard, the Pharmacopœia of the United States, but nevertheless constituting a large proportion of the resources of the medical profession in the treatment of the sick.

"In the absence of an authoritative standard, many of these unofficial preparations as supplied, though intended to be one and the same thing, were made by different formulæ and of different strengths, according to locality or the whim of individuals, so that it had become a common practice for physicians to designate some product of special manufacturers which could be relied upon to be uniformly the same whatsoever its composition might be. This practice, however well justified it may have been, entailed not alone annoyance, inconvenience, and extra expense upon the dispenser, but frequently all of these, and, in addition, what is of far more importance, unnecessary delay to the patient, due to the inability of the dispenser to supply a particular manufacturer's product.

"By force of habit, and for other considerations not so clear, it has thus become the practice of some physicians to manifest their preference for certain manufacturers by prescribing their products of otherwise well-known character and official composition; a practice that has brought about a condition of affairs in pharmacy which, if not abated, must result in disaster and ruin to the pharmaceutical profession, and in throwing the burden of dispensing medicines upon the physicians themselves. To ameliorate and overcome this tendency is the principal mission of the National Formulary.

"In its present revised form it embodies 454 formulæ, most of them for preparations for which hitherto no authoritative formulæ have existed, and largely for preparations which in similar form and composition have met with favor in modern therapeutics.

"These formulæ, moreover, have been carefully tested, are simple, easily carried out, pharmaceutically correct, and accurately present the medicinal efficiency of their components.

The usefulness of the National Formulary has now passed beyond the experimental stage. It has been before the American medical profession over a decade, and its preparations are favorably

known and prescribed by many practitioners throughout the land.

"What is needed is a more thorough acquaintance by physicians generally with the many valuable and efficient formulæ embodied in the Formulary, and in order to accomplish this desirable end the American Pharmaceutical Association has directed its council to prepare and publish an epitome of the National Formulary.

Now, from what has just been read to you, it may be learned that the National Formulary is a most valuable aid to us in our every-day practice.

I believe that the average physician will reach more nearly his proper position in the profession, do more good, cure more patients, and, in consequence be more successful with the use of the National Formulary than without it.

The key-note of success in the practice of medicine is the gaining and keeping the confidence of your patient. There is nothing without it. People of all classes of society and of all grades of intelligence are impressed with things that they do not thoroughly understand. The medical man, from the beginning of the world to the present time, has always been looked up to and respected for his noble calling, for his knowledge, his skill, his life of self-sacrifice, and for a certain indescribable something that puts him in a class by himself. His knowledge of life and its mysteries renders the sage, the scholar, and the scientist a child in his hands when ill. The more blind faith and confidence is imposed in the doctor, the greater his usefulness.

Why, then, should one do anything to limit or lessen that usefulness? When, for example, let us say, you write for Brown's "Compound Elixir of Gentian," and your patient reads the prescription, he says: "Why does the Doctor write for Brown's Elixir? Anybody can buy that in any drug store. Why does he not write a prescription of his own devising? And the patient who has looked up to you as his ideal physician, is disappointed to find that you prefer someone else's formula to one of your own. It may be, that the next time he is similarly attacked, he will think it unnecessary to send for you, and will go to the drug store and buy Brown's Elixir for himself. He may even advise his friends to buy it, and mention that you endorse it and prescribe it. A friend may buy it and take it, when it may be the very worst combination *he* could take for his malady. He promptly gets no better, and inwardly wonders what kind of a doctor you must be to recommend such a medicine.

All this could be very easily avoided, if you

still wished to prescribe the "Compound Elixir of Gentian," by omitting Mr. Brown's name, for which your patient must pay, and by writing in the letters N. F., standing for National Formulary. Everybody would then be satisfied, the patient, the doctor, the druggist, and your prescription could be filled anywhere without delay. No one should prescribe a mixture or a compound, the formula of which he is not sure of. Yet this is done every day, when many of the unofficial preparations put on the market by manufacturing drug houses are prescribed. The use of the National Formulary will prevent this mistake.

So, then, in conclusion, let me suggest to those who are not familiar with the National Formulary, to look into it earnestly. It will pay you. You will never regret it.

"The Malaria Map."—Of course, according to the recent explanation of the causation of malaria, this must be in some degree regarded as a misnomer, but that it still exerts a potent influence is very apparent to the real estate agent. The correct and official name of the map is, "A Topographical Map of the City of New York," and it was prepared by the late Gen. Egbert L. Viele for the Council of Hygiene and Public Health of the Citizens' Association in 1865. It has been adopted by the Health Department of New York, and copies of it are to be found framed and hanging on the wall of many physicians' offices. The map shows the Island of Manhattan as it was before the Dutch settlers bought it from the Indians and as it was in 1865. That is to say, underneath the labyrinth of streets are represented the hills and valleys, the swamps and meadows, the streams and water courses as they were before the leveling hand of the street-maker and house-builder made the whole island a monotonous wilderness of brick, mortar, block pavement, and asphalt. Some of the tales told by this map are revelations to those who know only the New York of to-day. Of course every old New Yorker knows that the Tombs stands on the site of the old Collect Pond, and that Canal street was once the bed of a canal, but how many know that West One Hundred and Sixth street was once the bed of a river, and that the hill between Columbus and Amsterdam avenues is caused by the masonry of the abandoned aqueduct? How many remember now that the territory from Eighty-fifth to Ninety-fourth street, between Central Park West and the Hudson, was once rolling meadow land, and that from Ninety-fourth to One Hundred and Second street was a region of swamps, cut up by numerous small streams? Who can tell now that from One Hundred and Fifth to One Hundred and Eleventh street on the west side was a region of rocks and hills, with brooks and rivulets everywhere, so that, while one house may be on a rock foundation, the next one to it may have a cellar constantly wet from the forgotten brook which flows under it? All the streams of this section were tributary to a good-sized river which flowed into the East river in the neighborhood of Ninety-sixth street. All this is told by the "malaria map." Perhaps this will explain to some landlords why apartments which are cheap and apparently in every way desirable are rejected after a list of streets has been consulted by the prospective tenant.

THE HYPOTHESIS OF COHNHEIM CONCERNING CARCINOMA.

BY ALGERNON T. BRISTOW, M.D.

Read before the Brooklyn Surgical Society, April 2, 1903.

FOR many years the theory of Cohnheim respecting the origin of tumors was considered by all pathologists the most satisfactory explanation of neoplasms. It became a sort of fetich and until quite recently few pathologists were willing to admit that any other explanation was possible. More recent works on the subject have, however, adopted a more cautious tone and acknowledge that the congenital theory of Cohnheim is not applicable to all cases (Stengel). A review of a number of recent works on Pathology shows increasing conservatism on this point, so that now this theory is nowhere, unless one excepts the writings of Senn accepted in its entirety. Says Coplin: "This theory explains to advantage the occurrence of chondroid tumors from bone, and of melanotic sarcomata from quiescent pigmented cells. It would appear that a further etiological factor is necessary to stimulate them to growth." The latter admission seems a fatal objection to this explanation, for it is the abnormal growth which requires explanation, and not the presence or character of the cells, and a theory which offers no explanation for the essential element of a tumor, *growth*, is no explanation at all but simply the merest fiction.

At present the cause of cancer is unknown. For the purpose of giving direction to investigation it is necessary to adopt the well-known philosophical method of the hypothesis. This is a tentative explanation of certain effects, the causes of which are unknown. In making a hypothesis we assert the existence of a cause on the ground of the effects observed and the probability of its existence depends upon the number of diverse facts that we are thus enabled to explain or reduce to harmony. To be of any value whatever a hypothesis must explain at least two different facts and the greater the number of facts which are harmonized the greater the probability that the hypothesis is true. Indeed a supposition may coincide with so many facts that it may itself be regarded as an established fact. (Jevons.) Familiar examples of this method of reasoning are the theories of the attraction of gravitation, the undulatory theory of light and the atomic theory of the constitution of

matter. It is to be observed, however, that so long as a single fact exists which is irreconcilable with a hypothesis it is untenable until the apparent contradiction is explained. It does not, however, follow that even where a single fact appears to be irreconcilable that it is so in fact. A discrepancy existing between the calculated rate of fall of the moon towards the earth and the known velocity of a falling body on the earth caused Newton to hold his celebrated theory in abeyance for years. This discrepancy was afterward reconciled and strengthened the theory. In dealing with a series of unexplained facts, such as those which make up the entity we call cancer, we must remember that the treatment of the disease, but particularly its prophylaxis will be largely influenced by the theory adopted for its origin. There is no theory at present to which objection may not be made. It therefore seems reasonable that we should adopt that theory of the disease which harmonizes the greatest number of observed facts and which explains the essential factor of the disease, the overgrowth of the cells. Any theory which leaves out of account that fact simply begs the whole question and is utterly worthless as a working hypothesis.

What are the observed and admitted facts regarding cancer? What are the facts in dispute? The facts may be stated as follows:

FACT I.

The most important fact about cancer is that there is in all cases an enormous proliferation of epithelial or connective tissue cells about a particular focus of disturbance. Cancer is primarily a local disease.

FACT II.

While cancer is primarily a local disease, it extends from its point of origin to distant parts, through the lymphatics in one form of the disease, mainly through the blood vessels in another.

FACT III.

Unlike the benign tumors, cancerous masses have a uniform tendency to break down and ulcerate. This occurs often without reference to their blood supply. Some of the most malignant forms, such as certain of the sarcomata break down and give rise to severe hemorrhages. This both in spite and because of a most abundant blood supply.

FACT IV.

In all forms of cancer there exists a cachexia which may be out of all proportion either to the mass of the tumor, its interference with vital functions or the presence of exhausting discharges.

FACT V.

Cancer occurs most commonly about the orifices of the body or in structures having direct communication with such orifices or in parts that are particularly exposed to traumatisms.

FACT VI.

Particularly in the sarcomata there is a previous history of traumatism, at least in a large majority of the cases, notably in that form which attacks the bones. In certain forms of sarcoma however it is impossible to trace any such etiological factor, as for instance, in that form which attacks the kidney in early life and is associated with muscle fibre.

FACT VII.

Chronic irritation plays as large a factor in the development of carcinoma as does injury in the sarcomata.

FACT VIII.

Cancer in the lower animals has been communicated by inoculation. The most recent example of this fact is the experiments of Loeb published in the *Journal of Medical Research*, 1901, No. 6. Starting with a small-celled sarcoma in the thyroid gland of a white rat, Loeb succeeded in making a large number of successful transplantations with local metastases in animals of the same species, both subcutaneous and intraperitoneal. The tumors maintained their original and characteristic structure throughout a long series of transplantations. The transplantations were uniformly successful when done in animals of the same species. Hektoen says of Loeb's work, "Critical scrutiny of the diagnosis sarcoma does not indicate that the present usage or significance of the word have been in any way violated to the slightest extent as applied to the tumors studied by Dr. Loeb."

The preceding series of facts, the writer believes may fairly said to be of admitted truth. Let us proceed now to the relation and a brief discussion of the disputed facts concerning carcinoma.

STATEMENT I.

Cancer is largely on the increase. It will be admitted I believe by the opponents of this statement that the recorded cases of death from cancer far outnumber those recorded fifty years ago. In Great Britain according to Spenser Wells, deaths from cancer increased from 7,245 in 1861 to 17,113 in 1887. Park has stated that if in the next ten years the relative death rates are maintained that in ten years from now, there will be more deaths from cancer in New York State than from consumption, smallpox and typhoid fever combined. W. T. Whitney stated that if death from cancer should go on at the apparent geometrical rate of increase of the past fifty years in two and a quarter centuries, every person over thirty would die of the disease. He, however, makes the further statements that the increase is only arithmetical at its worst and that it is probably due to better diagnosis and registration. Another explanation of the increase in cancer is that in these days the general expectation of life is better and therefore more persons live to the cancer age to die of the disease. In the investigations of Lyon (*Am. Jour. Med. Sciences*, 1901, cxxi.), this author found that the general cancer rate rose from 32 to 53 per 100,000 of population, in a period of ten years. There seems to be unanimity in the matter of the figures, but disagreement in their interpretation. One thing seems quite certain, that so far as statistics go there is an enormous increase in the number of recorded deaths from cancer. Is this increase real or only apparent? The attempt to show that the increase in the cancer death rate is due to the improved conditions of life which enable men and women to escape other diseases, so that they finally die of cancer is so ridiculous as scarcely to merit notice. To give force to such an explanation it must be shown that the increase in cancer keeps pace with the increase in the general expectation of life, whereas the fact is that the cancer death rate is out of all proportion to any improvement in the general health and consequent longevity. Another objection to the statement that cancer is on the increase is that the statistics are unreliable. Nevertheless if this is to explain away the figures is it not strange that statistics everywhere show if not the same increase yet always an increase? Finally, it is said that if the figures are correct, the increase is due to better diagnosis, and the fact that internal cancers are more frequently

diagnosed than formerly. A general review of this subject seems to justify the following conclusions: first that the uniform testimony of all mortality tables undoubtedly shows an increase in cancer and that this uniformity forbids the assumption that the figures themselves are erroneous: second that any attempt to explain the increase of cancer by increased longevity or better diagnosis is only an assumption as opposed to a fact, and that the increase is apparently still going on at the present time. Even Whitney, who comes to the conclusion that the increase is only apparent, says that at its worst it is only an arithmetical increase. Assuming this to be the ratio, are we to conclude that our accuracy in diagnosis is also increasing in arithmetical ratio? Yet if the first statement is true, to support the conclusion that better methods of diagnosis account for this increase the second statement must also be true, whereas it is clearly absurd. Looking at this disputed fact in the most conservative manner, the writer is of the opinion that cancer is on the increase, and that all of the so-called explanations which are intended to disprove this fact are mere assumptions without basis which cannot be made to fit known facts.

STATEMENT II.

Cancer is endemic in certain localities. Behla of Germany speaks of the disease as being endemic in the town in which he lives. This has a population of 5,000, including a suburb of 1,000. In this suburb in 23 years there were 663 deaths, of which 73 were due to cancer, a death rate of 1 to 9. Many of these cases were confined to certain streets and houses; as many as four deaths occurred in a single house during the period mentioned. Behla reported similar instances in neighboring villages. He also cites the cases of Behrens, who found in a village 10 deaths out of 38 to be due to cancer; also the cases of Pfeiffer, who found that in these cases the proportion of the general death rate to cancer was as 1 to 7. There is said to be a similar endemicity in certain parts of Normandy. Powers, of England, says: "In one village of 1,036 inhabitants, among whom 42 cases of malignant disease occurred between the years 1872 and 1898, four houses had more than one case of cancer. He also called attention to the fact that cancer was largely distributed in the digestive system. Out of 172 cases reported by him, 49 occurred in the alimentary canal, 10 on the lip and 22 in the liver. That is to say over 47 per

cent. of these cases occurred either in the alimentary canal proper or its appendages. Most of this series of cases occurred in a low marshy district, especially near streams.

Behla found that in most of his cases the seat of the cancer was in the stomach and liver pointing to some source of infection which gained access to the body through the digestive system. In studying the locality he found the districts marshy, the streams and ditches sluggish, the water which was used for watering garden vegetables and drinking purposes stagnant and polluted. Lyons' paper states that the house distribution of cancer shows a marked concentration in the German wards, also that cancer was 4.59 times as frequent among foreigners, particularly Germans, than among the native born. The Germans and Poles show ten times more frequently involvement of the stomach than the native born for equal numbers of each.

With reference to the above statements from a number of different observers, we may object that they did not know cancer when they saw it—in other words doubt the reliability of their observations. This is an easy way of disposing of facts that we are unwilling to accept, but it is not logical, for we have no means of proving the negative. We may also say that these cases were mere coincidences, in which case we simply prove that we are ignorant of the law of chances. Logically, I do not see how we can avoid accepting them as truths. There remains the deduction which is to be made. For the present let us leave that part of the question.

STATEMENT III.

Cancer is to a certain extent contagious. Behla has studied 119 cases of cancer of husband and wife, the interval extending from 3 months to 20 years. There are in addition 43 cases recorded of cancer of the penis and of the uterus in man and wife and 6 of family cancer, in which the members used the same syringe. Eberth has collected 22 cases in which there was direct transmission of cancer from lip to lip, tongue to palate. Behla has 8 instances of death from malignant growths in physicians and surgeons who were inoculated with juices from tumors and 4 instances of apparent human infection from cancerous cow, dog and hen. He also cites the cancer epidemic among the white mice in the Pathological Institute at Freiburg. Francote, Rechter, Langenbeck and Behla in Europe and Loeb in this country have all successfully inoculated can-

cer in animals. A recent well-known instance which is most suggestive is the death of the widow of Frederick the Good from cancer, her husband having perished from cancer of the larynx. To these narrations we may make answer that they do not prove the contagiousness of cancer. If by that we mean that cancer cannot always be conveyed from one individual to another our position is sound, but if we mean to make the broader statement that in all these cases the occurrence of the second cancer was a mere coincidence, then I say again we show our ignorance of the law of chances. When a cancer occurs in a husband or wife in a position which implies contact, the more numerous the cases, the less the probability of a coincidence, and it is to be remembered that it is but very recently that facts like these have begun to be collected. Here is one writer who has been able to collect 118 cases in which cancer occurred in husband and wife, and in 43 of these cases the cancer was in uterus and penis.

All surgeons are familiar with the cancer which follows stitch holes, particularly where an abdominal section has been done and a general carcinosis of the abdomen discovered. This is particularly apt to occur in the cases of malignant papilloma of the ovary. This may be interpreted when taken by itself as a mere inoculation of the cancer cells, but taken in connection with the preceding facts it seems to possess a different significance.

STATEMENT IV.

The increase of cancer in the past fifty years has kept pace with the increased facility of our means of transportation. There is no doubt that this accounts for the importation and rapid spread of plants and insects. Our woods teem with wild flowers and noxious weeds that are not indigenous to our shores. We know also that certain diseases have been taken from their native habitat and transported to distant shores. The writer does not desire to make any deduction from this statement, but thinks that it deserves mention in this place.

We have thus far then placed in juxtaposition eight facts concerning cancer which are generally so accepted and 3 statements which, though in dispute, nevertheless are in the highest degree probable facts.

How many of these facts does the hypothesis of Cohnheim harmonize? As briefly stated by Cullen, this theory is as follows: During fetal life portions of epithelium become nipped off and

included in the connective tissue. In after years these colonies of cells are in some manner stimulated and give rise to carcinoma. Cullen very clearly states the objections to this theory from the point of view of the microscopist. So far as I know, there are only two facts relating to cancer which the theory explains, namely the epithelial character of the carcinomata and their tendency to reproduce in an atypical form the parent structure. Thus malignant growths of the thyroid and their metastases reproduce atypically thyroid structure and have a tendency to the production of colloid material; and malignant growths of the liver with their metastases have been known to produce bile. The essential facts of a carcinoma which require explanation are not however the character of the cells, nor their arrangement nor their secretion, but the fact of their proliferation. Not a single one of the further facts and statements concerning cancer does this theory in the slightest degree even touch. On the other hand it requires assumptions that seem absurd. For instance, cancer has been reported as occurring in a man of 91 years old and I have seen a number of cases occurring beyond the age of seventy. If the theory of Cohnheim is correct, it is necessary to assume that certain embryonal cells nipped off during fetal life remained intact throughout a long lifetime, and then at the termination of a long period suddenly became aroused to malicious activity. This does not correspond with what we know of the phenomena of cell life and assumes for an imperfect product a permanence and activity which normal cells do not possess. In other words the embryonal theory has always seemed to me to be something like this in its reasoning. An atypical proliferation of cells is the result of embryonal rests and is a cancer. How do you know these cells to be atypical? Because they result in an atypical structure. In other words a carcinoma develops from embryonal tissue. The tissue is embryonal because it is a carcinoma. One assumption is made to prove the other. Never is the proliferation explained, always the cells and their arrangement. It hardly seems necessary to refer to this hypothesis as at present the best works on pathology reject it, but it has given a trend to scientific investigation, which I believe is in the wrong direction, and has retarded clinical investigation which would have been productive of useful information. The theory is now invoked to explain such occurrences as the metastasis of certain benign tumors, such as the chondromata. A significant admission on this

point is made by Stengel who says these metastases are almost always cases of chondro-sarcomata. Another class of benignant growths which have a tendency to metastasis are the adeno-cystomata. Of these, however, Stengel says: "These cystic growths have a decided tendency to malignancy. So it seems as if the fact of metastasis was in itself an evidence of a transition from a benign to a malignant growth.

The theory of Cohnheim is an effort to explain the microscopic appearances of malignancy rather than the clinical fact. So with the allied theory of Ribbert, who claims that carcinoma does not begin by an invasion of the connective tissue by the epithelium, but that at first there is an active increase of the connective tissue just beneath the epithelium. As a result of this increase in the connective tissue cells, they invade the epithelial layer and nip off cells or groups of cells which later become carcinoma. In certain cauliflower growths of the cervix, Cullen has shown that the exact reverse takes place, as also in adeno-carcinoma of the body. This theory, like that of Cohnheim, absolutely fails to explain the one factor that most needs explanation, the activity of the cell proliferation. The present tendency of those pathologists who rely entirely upon the microscopic appearances of cancer for its explanation, is to hold that cancer is primarily a disease of the epithelium itself. This is the view held by Hanseemann and Hauser. Cullen states that it is probably correct. Cancer a disease of the epithelial cell itself! Is this anything more than a changing of the terms of the problem rather than an answer or a possible solution? It is as if one were to say of phthisis that it is a disease of the lungs. That would be true, but we should be no nearer the origin of phthisis than we were before. When I was a medical student the essential element of phthisis was supposed to be the giant cell and pathologists talked of the giant cell and its relation to tuberculosis much as they do at the present time about the epithelial and the connective tissue cells and their relation to cancer. What we want to know of these collections of cells we call cancer, is the cause which is back of them. To tell us that the disease is one of the cells themselves explains nothing. We are as much in the dark as ever. With respect to all the other collected facts about cancer this wonderful discovery that it is a disease of the cells explains not a single one, harmonizes none. Why do these cells proliferate? Because they are diseased says Hanseemann and Cullen. But what is the cause of the disease which is in the

cells? These pathologists do not answer, so their fine theory leaves us just where we were before.

If we must theorize, let us at least adopt a theory following the dictates of logic and which at least explains something. We do not know the origin of cancer. We must for the present theorize. Let us at least have a theory which has the support of solid facts, clinical facts for its support and that harmonizes the undoubted facts as at present known regarding cancer.

From a careful consideration of the facts and statements which I have accepted as either proven or in the highest degree probable regarding cancer, I am led to the conviction that there is but one direction in which they all point, parasitism, but one theory with which they are all in harmony, parasitism. Let us clinicians who, I am sorry to say, know too little about the microscope, have a word to say in defence of parasitism. Let us examine each of the numbered facts and statements that have been made this evening and see how they fit into this theory both singly and collectively. Take the first fact, the proliferation of cells. Have we not many instances in which the irritation of a parasite is followed by cell proliferation. Take actinomycosis, mycetoma and the infectious granulomata. Compare them with the appearances in sarcoma. How difficult it is often to distinguish between sarcoma and a granuloma. Molluscum contagiosum is another disease in which epithelial proliferation takes place in consequence of the invasion of the organism by parasitic forms. It is a rule without exception in animal tissues that a proliferation of cells takes place always as a result of irritation. In the case of the bacteria we have a small round cell infiltration. The special stress which the microscopists place upon the form of the proliferations which occur in cancer has not in my opinion the importance which has been placed upon it. When cells proliferate they reproduce their kind. A new cell when formed is possessed of all the attributes of its type. Thus we must assume that the cells of the liver are constantly being renewed and the daughter cells have the same properties as the cells from which they have sprung. So with all specialized cells. If we assume that the element of irritation, whatever it is, exists within the cell itself, and that it also divides together with the cells, each of the two daughter cells which come from a parent cell would be infected and the same process would be repeated. Inasmuch, however, as such a process of development would be the result of irritation and not normal cell growth we should expect an atypical and lawless

growth of cells. After all, it is the fact of growth out of proportion to the needs of the organism that needs explanation, and we know that overgrowths do occur in animals, plants and man as the result of the irritation of parasites. There is, therefore, nothing contrary to reason in supposing that the overgrowth of cancer may be due to the presence of a parasite.

One of the strongest arguments that can be brought in favor of the parasitic theory is the occurrence of metastases and the manner of their extension through the blood channels and lymphatics. It is exactly what we should expect reasoning *à priori* and what happens in known parasitic diseases, such as syphilis, phthisis and inflammatory processes. Therefore this fact of metastasis harmonizes with the idea of a parasitic origin.

The fact that cancerous tumors break down early, even in cases where the blood supply is abundant, can be explained on the theory that there is a local toxemia which destroys the cells. A general toxemia will account for the cachexia of cancer. The fact that cancer occurs about the orifices of the body is to say the least suggestive of an entrance of the disease from without and best harmonizes with the idea of a parasite. Facts 6 and 7, which deal with the influence of chronic irritation and trauma, inasmuch as these factors are known to invite the attack of another parasitic disease, *e.g.*, tuberculosis by creating an area of lessened resistance, again may be said to be in harmony with the idea of parasitism.

The eighth fact that cancer has been communicated by inoculation from one lower animal to another, is not easily explained in any other way than on the supposition that the disease is parasitic.

If we believe that cancer is largely on the increase, that it is endemic in certain localities, that it attacks certain peoples in certain localities, and that in certain races in certain localities it attacks the alimentary canal rather than other parts, we are certainly brought face to face with a series of facts that can be made to harmonize best with our present knowledge by one supposition. The fact of communicability from husband to wife, and from one member of a family to another, are all suggestive of but one origin. I do not here mean to assume it as an undoubted and established fact that the disease was inoculated from husband to wife, but as stated before, the greater number of such instances which can be cited, the greater the probability that an actual inoculation has taken place, and the less the likelihood that

the two infections have been but mere coincidences.

It seems to a clinical observer as if at present investigation by the microscope has gained as much as can be expected. We may well ask the question whether, if in our zeal to discover a parasite or to ferret out the origin of cancer by the microscope alone, we have not neglected other methods of investigation capable of yielding up the secret. Let us take, for example, the case of yellow fever. No one believes that the specific cause of this disease has ever been discovered. Is there any one since the investigations of the Reed commission who doubts that the disease is parasitic? What we need are accurate vital statistics in carcinoma and sarcoma. We ought to have precise data concerning all the subjects which I have put down under the head of statements that are probable but not yet proven. Is cancer more frequent along water-courses and near marshy ground? Does it occur in certain localities to a greater extent than others? Have habits of life and peculiarities of diet any influence on the mortality rate from cancer? If Boards of Health would take up this matter and send out a circular to be filled up by every attending physician who assigned carcinoma as a cause of death we should soon be in the possession of valuable information. Finally, the writer does not wish to be understood as claiming that cancer is a parasitic disease. He submits that it is possible for him individually to harmonize more known facts and probable facts concerning carcinoma by the parasitic theory than in any other way. Starting with this proposition his conclusion is that we shall gain more by securing evidence of the character mentioned, which shall either strengthen this probability or disprove it than by clinging to laboratory methods as the only method of investigation.

Discussion.

DR. J. P. WARBASSE said that this is a fruitful subject, and one that has attracted much attention for many years. He recalled that in this very line Dr. Bristow and he had a discussion before the Pathological Society several years ago, upon the occasion of the reading of a paper by himself refuting the parasitic theory of the etiology of carcinoma (*American Jour. of the Med. Sciences*, 1894); and during all the interval that has elapsed since that time men have appeared about every six months who have claimed to have discovered the parasite of carcinoma; and in al-

most all of these cases it has been shown that the so-called parasite that they had discovered was not a parasite, but a nuclear change in abnormal cells.

Dr. Warbasse wished to be plainly understood as disagreeing with the author of the paper in the assumption that carcinoma is a parasitic disease. That extraneous parasites may be the exciting cause, is well said, as they may produce mechanical or chemical irritation, which is the same thing. In the lacerated cervix, which is the seat of an infective inflammation, the irritation of the discharges may be responsible for exciting an abnormal proliferation of pathological cells, but we can not regard that infective process as the specific cause of carcinoma.

He wished also to take exception particularly with the author's statement, that the communicability of carcinoma from one person to another has anything to do with proving or disproving the parasitic nature of the disease. The author has mentioned the fact that over 100 instances are known in which carcinoma has been transmitted from one individual to another. The speaker said that he knew more instances than that, in which skin had been transplanted from one individual to another or from one part of an individual to another and grown; and it is the same thing. It is the transplantation of cells from one individual to another; and it does not carry with it the implication that a specific micro-organism is responsible.

Furthermore, the transplanted cell always follows the anatomical type of the original disease. Rather than regarding that as an evidence of parasitism, we should regard it simply as an evidence of the physical transplantation of the cell. The speaker had seen a primary carcinoma of the liver, in which there were metastases in the post-peritoneal glands. These metastases were composed of bile-producing cells and secreted bile, and the metastatic nodules were bile-stained. In other words, cells of the liver itself had become dislodged and transported from the liver to the post-peritoneal glands. The fact that these metastatic cells produced bile and were anatomically similar to liver cells, rather than strengthening the parasitic hypothesis, simply makes it unnecessary.

The speaker also had in mind a carcinoma of the pylorus, which he had seen associated with a carcinoma in the cul-de-sac of Douglas. In that case there was a breaking down of carcinomatous material in the peritoneum from the pyloric carcinoma, and it was quite evident that cells

from the pylorus had gravitated into the cul-de-sac, and there developed a carcinoma of the rectum, for the carcinoma of the rectum had not involved the mucous membrane and was of the same anatomical type as that of the pylorus. That needs no more parasitic explanation than a parasitic explanation is required when we graft skin from one part of the body to another. It is a transplantation of pathological cells.

Finally, he expressed himself as particularly glad that Dr. Bristow, in closing his paper, does not want himself understood as claiming to endorse the parasitic theory of the etiology of carcinoma.

DR. M. FIGUEIRA said that this theory of the origin of cancer, or of tumor in general, can be divided into two groups: the cellular group, *i.e.*, that group formed by those that claim that the cells of the body in themselves are the origin of cancer and tumors, by their inherent biological properties, that cancers and tumors are only modifications of the formative process, that they arise from some cause unknown to us, but independent of outside influence.

On the other hand we have the theory of the parasitic origin of cancer, explaining its causation by the influence, not only of bacteria, but of the lower forms of life like the protozoa and the fungi. A pathologist has lately claimed that the cause of cancer is a fungus similar to the yeast fungus, and that all cells of cancer that were supposed to be cells are nothing but parasitic organisms, and that is the reason why when transplanted they live and propagate (*Adamkiewicz*, 1902). When the brightest minds of the medical profession all over the world are divided and in doubt and when such men as Doyen of Paris, 1901, Max Schüller, Gaylard, Leopold, and many others believe in the microbe theory, and are dedicating to it their best talent and endeavor, it is not for the general surgeon to deny their dictum or doubt the wisdom of their lines of study. For his part he believes that the origin of cancer is to be sought along the lines of biological study, laboratory experiments, and pathological investigation.

DR. G. R. FOWLER said that the attempt to isolate the parasites of carcinoma was made by some Italian observers, and claims were made at the time that there was an actual isolation of the growth and culture—just as a micro-organism of vegetable origin. These experiments were repeated at the New York State Institute at Buffalo by the assistants of Park. A careful review brought forth criticisms, which evidently have

been sustained, because no further claim has been made that actual cultures of the parasite were made. The criticism consisted in calling attention to the fact that measures were not taken to isolate the cell growth from what might have been the parasitic product of the so-called culture, so that up to this point that falls entirely to the ground.

As to the communicability of carcinoma—perhaps that is as good a term as contagiousness, because it includes its communicability from one part of a patient's body to another—the instances cited by Dr. Bristow of the transmission or communication of the disease from husband to wife and vice versa, and in other ways by contact between individuals undoubtedly have a proper clinical foundation. These observations are founded on fact.

The speaker had also in opening the abdominal cavity for an isolated carcinoma of one of its contained organs, found portions of carcinomatous structure all through the peritoneal surface, in the omentum of the parietal peritoneum and on the intestines. Probably these were scattered in a seedling way. It is difficult to understand how these metastases, in the strict sense of the term, could have occurred, but it would seem they occurred through a simple scattering of the cancer cells on the peritoneal surface; yet, as Dr. Warbasse says, it does not prove they have a parasitic origin. It simply proves that cells from their original source are scattered here and there; so that after all, the attempt of Dr. Bristow to bring out some salient points for discussion, and particularly the attempt to point out the way whereby we may or should attempt to harmonize facts as they present themselves to us through advanced theories, and the attempt to make the theories fit the facts or the facts the theories is a very commendable effort, and has given us an interesting paper.

The speaker thought that we should have to come to the conclusion that the case is not proven; and whatever the surgeon may look for in the way of help from the pathologist in the future, up to the present the pathologist has furnished very little. He thought that the surgical clinician had given the pathologist something to work upon rather than that the pathologist has been of material assistance to the surgeon. We shall be compelled to go on in the same way. We shall extirpate carcinoma and sarcoma where they are extirpable; and we shall ligate vessels and attempt to starve them out where they are not. The fetal origin, or the parasitic origin of the disease, or the purely traumatic and

local irritation origin within the cell growth as the Germans say, as well as with reference to the specific origin—all these theories may confront us, but it will not make any difference with us as surgeons. The X-ray will sometimes cure, sometimes relieve, sometimes do no good, but we shall go on and on cutting them out, praying they will not return, and hoping our prayers may be answered.

DR. A. T. BRISTOW said that he had stated as clearly as possible with reference to his paper, that it was merely an attempt to present an hypothesis. We should take that hypothesis which explains the most facts, and which offers a reasonable prospect of further investigation by means of clinical facts. The cellular doctrine of carcinoma has gone just as far as it will ever go profitably. What we want to know are more clinical facts with relation to carcinoma in districts, in peoples and in certain localities of the body; and it is only within the past three or four years that any such statistics have been available.

With reference to Dr. Warbasse's explanation and comparison of skin grafting, the speaker could only say this, that, if when he had grafted a portion of diseased skin on another individual, and that individual's skin had remained as a diseased skin, he could see some analogy; but he could see no analogy between skin grafting, in which normal skin grows on normal tissue and remains normal, and in which there is an implantation of abnormal tissue on the structure on which abnormal tissue continues to grow and destroys the patient. There is no analogy. In one case it is normal and remains normal, and in the other case it is diseased—it was grafting of unhealthy tissue. There is no comparison between the two. He might as well argue for the same reason, that because a skin graft will grow on a healthy individual that that does not prove an infection.

Harnsberger, in *Amer. Med.*, March 28, 1903, summarizes the uses of chloroform in labor.

Use only a pure preparation. Give it drop by drop in an Esmarch or other good inhaler.

Withhold its administration and remove the inhaler unless needed—chloroform acts quickly.

In obstetric work it is rarely necessary to force anesthesia beyond the so-called second stage. Keep the patient's lower jaw pushed well forward.

Watch the patient—the eyes, pulse, respirations, color and muscular movements.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

REGULAR MEETING, JUNE 16, 1903.

CHAS. N. COX, M.D., in the Chair.

Paper: *The National Formulary*. By W. N. BELCHER, M.D.

DISCUSSION.

DR. M. F. DE LORME: I am glad to see the subject of the National Formulary brought more prominently before physicians. That has been neglected in previous years, and the National Formulary, to a great many physicians, is an absolutely unknown quantity. I recall my experience as a drug clerk, before going into medicine, when receiving a prescription from a physician, in which he designated "National Formulary," was a rare thing, and I might say it is hardly any more common at this time than then. That is some five years ago.

The National Formulary, I believe, is going to overcome the defects, of which Dr. Belcher spoke, with regard to the multiplicity of formulæ gotten out by the pharmaceutical houses. If you will investigate the subject you will find that the different pharmaceutical houses put up, each a different elixir of iron, quinine and strychnine—differing in color, taste, etc. Physicians have gotten in the habit, from the advertisements spread about by these houses, of specifying some particular make, which it is practically impossible for the druggist to supply, much as he would like to, if he would comply accurately with the physician's prescription to give Brown's Elixir. This state of affairs has brought about a great deal of excitement and outcry among physicians as to substitution. The lay journals are also much concerned over the subject. Substitution is largely fostered by prescribing the preparations of the various pharmaceutical houses and specifying them. If it were better known, the National Formulary would practically displace all these preparations.

It is true, a great many National Formulary preparations are prescribed each day, but the physician is not aware that he is so prescribing. Dobell's Solution, Warburg's Tincture, and all such commonly prescribed mixtures are of the National Formulary, yet the physician is not aware of it.

Where the N. F. is specified is decidedly rare. I suppose it is hardly just to comment upon that fact, unless some means of rectifying the situation is suggested. It strikes me the best way to rectify it is to start the subject in the very earliest stage of the student's work. He must of necessity know something about that book when he leaves college, in order to profit by it.

That brings us to the subject of pharmaceutical education for medical students. During recent years the colleges of medicine have given considerable thought to the subject of pharmacy, which had not been the case heretofore, and within the last five years probably ten per cent. of the medical colleges have established a department of pharmacy. I think the Long Island College is the pioneer in establishing a *practical* course in pharmacy, where each student not only studies, examines and tastes each preparation of the National Formulary and of the Pharmacopœia, but makes up many of them himself. I think that is the first step in the solution of the problem that the Doctor has brought out, and it occurs to me if we can get the matter a little further pushed along, it will remove the condition complained of, that the National Formulary is practically unknown.

DR. W. SCHROEDER, JR.: I do not know that I can add anything to what Dr. DeLorme has said, except that in six years' experience in the drug business I saw very few prescriptions calling for N. F. preparations.

The matter of substitution Dr. DeLorme has spoken of is about like this: The representative of a drug house out of town will strike a doctor's office and speak to him of some new preparation. The physician will prescribe the remedy, and the patient takes the prescription to a druggist to have it filled. He has not got it. He will call upon some other druggist for the article prescribed, and finds he also has not got it. The next thing, instead of losing 35 or 40 cents, he will use somebody else's preparation. If the National Formulary were prescribed, the preparations could be made up if they were not in stock, and they would be all uniform. In that way there would be no change in the color of the medicine when a patient had his prescription renewed, and when he received four ounces he would not be charged for a pint. In prescribing some proprietary preparations, the druggist has to buy a bottle of it, probably containing not less than a pint, and when the prescription calls for four ounces, somebody has to suffer, and that often is the patient.

MR. J. G. WISCHERTH: The subject has been so thoroughly covered by Drs. Belcher, DeLorme and Schroeder, there remains very little for me to say. I should like to add a few words in the nature of an appeal.

The vast majority of pharmacists have been earnestly striving to be of assistance to the physician in his practice. As Dr. Belcher stated, they have noticed the tendency of the times was toward the prescribing of proprietary articles; in other words, saving the physician the time and trouble of prescribing the various preparations separately. They have seen the tendency, and many years ago they got together in their societies and formulated this work. They have kept it up. It has become interesting, and the American Pharmaceutical Association has taken up the matter. They had their committee publish a book, which is one of the most complete of its kind in the world.

The preparations in elegance, taste and pharmaceutical properties and effects compare with any preparations without exception. With all it has been very discouraging to see how little the efforts of the druggists in that direction have been appreciated. In the Kings County Pharmaceutical Society we have appointed a committee to see if we could not make this work more interesting to the physician. One of the efforts of this committee is in bringing this subject before you to-night.

Outside of the inappreciation of our efforts in that direction, I would like to add that the work is not only a benefit to the pharmacist, but of much value to the physician. If you will look back you will recognize that the physician has been used as an advertising agent for a large number of these preparations that are on the market to-day. They have been introduced by the physician, recommended by him, and just as soon as they have become known, and a sale for them procured with the aid of the physicians, they are sold afterward as patent medicines and advertised as such—at least a great many of them. A larger majority of the proprietary preparations are used more by the doctor's patients to-day than are written for by the physician himself.

I do not know that I can add anything further to this subject, but beg you to do all you can in specifying the National Formulary.

MR. A. E. MARSLAND: One point occurs to me in this matter, and one that ought to have weight with the physicians of Brooklyn and New York, and that is the fact that the National Formulary was devised and gotten together by New

York and Brooklyn pharmacists. That fact alone, it seems to me, ought to appeal to the physicians of New York and Brooklyn in giving to this work the practical prominence it deserves.

The point Dr. Belcher brought out about physicians prescribing Brown's Elixir, etc., and the patient finding out what Brown's Elixir is, and preferring to have the doctor's formula than to have some ready-made preparation, is a fact. A customer I had in my store about six months ago came to me and said: "I have been to see a physician. I described my condition to him and answered the questions that he put to me." He thought a few minutes, and the gentleman said: "What do you think he did? Instead of formulating a prescription for me, he reached up to his case and brought down a patent medicine." He said to me: "Take this, come back in a few days and let me see how you feel." The gentleman said: "I took the bottle, looked over the label, saw it was something that was put up by some New York firm, and I thought to myself, I do not care for that kind of treatment. I simply laid the bottle at home," and he says, "I have come to you to see if you can prescribe for me." I told him I was not accustomed to that kind of business over my counter, and discouraged him, and suggested he go and see some other physician. He did. That is a fair sample of things that come up every day to the observation of pharmacists who practice in large cities.

Patients go to a physician's office and expect intelligent consideration of their case, and an intelligent culling out from the knowledge they have of drugs, a medicine that will be put up for their special case. Very often when they get a ready-made preparation, they say, "Why this is so and so's preparation. Well, give me a bottle of that. There is no use getting this prescription filled." They get it and very often pass it over to their friends, and sometimes the doctor loses a case.

There is one point Dr. DeLorme mentioned that is not quite a fact, and that is that the National Formulary preparations are not more prescribed at the present day than they were five years ago. I would like to differ with the Doctor on that point. I have occasion to observe it, and I can say in the last two or three years the N. F. preparations are becoming more and more prescribed. My friend, Mr. Wischerth, called my attention to the fact that Dr. Bartley lived in my neighborhood, and that might account for it. It does, in a measure, but outside of Dr. Bartley's prescribing the National Formulary, I have noticed quite

a little advance in the frequency of the use of the preparations.

The preparations that occur to me at this moment, that have given eminent satisfaction and are pharmaceutically elegant are these preparations which I will enumerate: The Compound Syrup of Hypophosphites. This preparation is, in my judgment, superior in every way to the proprietary medicine that is so common in its use among physicians, by the name of Fellowes Syrup of Hypophosphites. It is equal, and I think, superior, in the fact that it does not precipitate and become cloudy. You take a bottle of Fellowes Syrup and let it stand on a shelf for two or three weeks, and at the bottom will be a cloudy precipitate. I do not know whether it is strychnine, or what it is. It is not a pharmaceutically correct preparation, or it would not do that.

Then there is an elixir of iron, quinine and strychnine. This is an elegant preparation. Also the elixir of the bromide of potassium. The basis of this preparation is the Elixir Adjuvans, which is the best vehicle for the administration of bromides. It disguises the saline taste most effectually. Then the Syrup of Yerba Santa and the Elixir of Pepsin, Bismuth and Strychnine. These are most agreeable. I called the attention of a physician in my neighborhood to the Elixir Ferri Phos. Quinia et Strychnia. He gave it a trial, and has since prescribed it largely. Warburg's Tincture is another preparation to the credit of the National Formulary.

I might go on indefinitely and give these formulæ, but it is sufficient to call your attention to a few of the many excellent ones the book contains.

I do not wish to be construed as presuming to dictate what physicians should prescribe, but I do say that it is a shame to the medical profession when it stoops to prescribing patent and semi-patent medicines whose virtues very often prove to be mythical.

To my mind there is an analogy between the physician who uses this class of preparations, thereby accepting all their claims for them, and the farmer who in reading over his patent medicine circular, accepts it all as Gospel, even though it assumes to cure everything, from corns to consumption.

The plea I make is for a return to first principles in the art of prescription-writing—a more general framing of the individual prescription, culling out in a scientific manner from the store-house remedies to suit the case in hand, not fitting the case to suit ready-made remedies.

DR. W. N. BELCHER: I want to call the attention of the Society to these preparations which have been brought here by Messrs. Wischerth and Marsland. These are very elegant preparations and represent the earnest work of these gentlemen.

In closing the discussion, I have simply this to say: I brought this matter to your attention as the representative of Dr. Bartley. I am very glad of this opportunity to present the National Formulary. As stated in the few remarks I made upon the subject, it seems to me that it is more strictly professional for us to prescribe remedies and combinations of drugs with which we are reasonably familiar, and that we are falling short of our duty to our patients, to say nothing of our duty to ourselves, in prescribing mixtures, the formulæ and composition of which we are not absolutely sure.

In addition to this, the strictly business end of the proposition is not to be ignored, although this, of course, is of least importance as compared to the real objects of our profession. It seems to me, from a purely business point of view, that the use of the National Formulary is of value to the doctor, as compared with the indiscriminate use of medicines of a more or less proprietary character. These preparations are put upon the market under various names by drug houses, and when you write for them you must of necessity mention the name of the manufacturer. This may not always be desirable.

Beyond all this, and, as has been already mentioned, a matter of greater importance is the habit which patients get of buying these medicines and taking them on their own responsibility, and perhaps as a result of your having endorsed and prescribed such a medicine on a former occasion. This is to be especially regretted because of much harm which may result from the indiscriminate dosing of people with remedies often not indicated or required, but actually contra-indicated.

All of this might be avoided by the use of the National Formulary. If the members of the Society will look carefully into the subject they will find in the list some very useful combinations of medicines, and will, I am sure, make more frequent use of these formulæ in the future than they have in the past.

Paper: *A Report on Present Methods of Administering General Anesthetics in the Brooklyn Hospitals, with Comments.* By A. F. ERDMAN, A.B., M.D.

DISCUSSION.

DR. P. M. PILCHER: It was during my term as Interne at the Methodist Episcopal Hospital that nitrous oxide was first given, and it was also during that period that bromide of ethyl was first administered. The conditions under which bromide of ethyl was first considered were these: The patient was a laboring man, an Italian, and although ether, chloroform and two or three mixtures were administered, they did not seem to have any effect upon him. I gave the man 15 ounces of ether and he had had two or three ounces of chloroform without any effect. Dr. Fowler gave me a tube of bromide of ethyl, and told me to give him that. About six drachms were given. The patient dropped as if struck by a hammer. I then continued with ether anesthesia, and for five or six minutes he went along all right. Then his breathing became disturbed. I stopped giving him ether and did not give him anything for seventeen minutes. During that time he did not come out of the anesthesia, and the pulse came along all right. I started ether again, and continued without incident. That was the first time bromide of ethyl was given at Seney.

After that we regulated the amount, and found two drachms of the bromide thrown upon the cone and put over the face would anesthetize in thirty to forty-five seconds. If you asked the patients what effect it had on them, they would speak of sudden overcoming of the senses and most pleasant oblivion. After the bromide of ethyl has taken effect, ether is administered in the usual way, and the patient goes along without any disagreeable effects, such as struggling, etc.

The same thing takes place with nitrous oxide. At first we were not successful in giving it. Studying the subject, we found it was because air was introduced with the nitrous oxide. By absolutely excluding air the patient went under without any trouble and stayed under until ether narcosis was established.

Spinal anesthesia was also introduced at that time, and I recall when Dr. Fowler gave his first injection, but there were some unpleasant after effects which caused him to give it up.

The various local anesthetics have been tried in the service of Dr. Pilcher, instead of cocaine a solution of eucaine-B is used for local anesthesia—a solution 1 to 1,000. The tissues may be thoroughly infiltrated, and extensive operations undertaken painlessly.

Another interesting feature of anesthesia is the fact that in Germany and some other countries

ether is seldom used—chloroform is used almost exclusively. In some parts of the country, and in Austria a peculiar combination of anesthesia is used, *i.e.*, Schleich's mixture, which is a mixture of chloroform, sulphuric ether, and petroleic ether (benzine).

Chloroform, if used carefully by one who is accustomed to its administration, is, in my opinion, reasonably safe, but the man to give chloroform must give it drop by drop and watch the patient every minute, and not the operation.

DR. H. T. HOTCHKISS: Some few years ago, when I first had the pleasure of reading a paper on this subject, I remember one of the surgeons claimed that after fifty years of experience, there were but two anesthetics—ether and chloroform—and what was true then is true to-day. There are really but two agents for anesthesia that are always efficient and effectual.

Nitrous oxide anesthesia, when combined with ether, is a most efficient and excellent agent. I have been in the habit of using the Bennett inhaler, which I think is the most perfect instrument for anesthesia which has yet been produced. You can start with N_2O_2 gas, and then turning the thumb screw on the cone admit the ether vapor along with the gas at the proper time, and again turn off the gas and turn on the ether fumes so that the patient passes from one stage to the other without any consciousness whatever or exhibiting the struggling effects of ether. In the same way you can use chloroform in this Bennett inhaler. You can use any combination you wish, but the ether, starting first with the N_2O_2 gas is the most desirable anesthetic.

The class of patients that N_2O_2 does not agree with are those who are very full-blooded or alcoholics. They invariably struggle and make a great outcry, which interferes with the proper giving of the anesthetic, but ether or chloroform will certainly control that condition.

Another thing which will control this great struggling on the part of plethoric patients is the fact that without waiting for complete relaxation of the muscles, if the operator will let out a few drams of blood he will then produce a perfect relaxation, which you can not get from ether or chloroform, unaided by this step. There are, of course, a great variety of patients, and the more intelligent class are those who submit to anesthesia with greater grace than those from along shore and from tenement house neighborhoods. The psychological element, I imagine, has a good deal to do with that.

As to the after effects of anesthetics, as far as

my experience goes (and I think it has been quite considerable), I have never seen any ill effects from the administration of an anesthetic.

A point I would criticise on the part of surgeons to-day is the lack of speed which characterized the surgeons of the pre-anesthetic days. It seems to me that if the surgeons of to-day operated with the same rapidity and dexterity that must necessarily have been the case in pre-anesthetic days, there would be less ill effects of prolonged anesthesia.

It seems to me, too, that the stage preceding putting the patient on the table is too long delayed. The patient should be so prepared and the field so prepared that almost simultaneously with placing the patient on the table the first incision would be made.

DR. J. E. BLAKE: Dr. Pilcher mentions narcotizations abroad. I may say that I visited many of the well-known clinics abroad and was interested in studying the various methods employed.

In England, chloroform is the agent which is customarily employed. Regular anesthetists administer the drug, and accidents are infrequent.

In Germany, less care is observed in the use of chloroform than we deem advisable. In the private clinics it is usually well given, but in many of the larger institutions the contrary is the case. Students often administer the anesthetic and the amount given is frequently too little or too much. When the patient is coming out a large dose puts him too deeply under, and so is maintained the normal average.

Operations in German hospitals are also frequently begun before the patient is fully relaxed. And it is not uncommon to see the first incision made whilst the patient is still struggling on the table, and the assistant pouring chloroform on to the mask, as we would use ether.

That this disregard of what we consider necessary and proper precautions results unfortunately might be expected. Artificial respiration has frequently to be performed, and a well-known assistant in Berlin admitted to me that accidents were not infrequent. In a clinic in another German city I know of two chloroform deaths within a little more than one year.

Probably the same differences might be observed by comparing various well-known American institutions, or even the work of different men in the same institution.

I believe that the personal element enters more largely into the making of a good anesthetist than has generally been appreciated. There are some

internes, who, after a week's practice in the giving of ether, are superior to their predecessors, who may have had months' experience.

In this age of specialization, the fact that certain men can do a certain piece of work better than men in general, leads to their employment to do the work in question. And if we grant that certain men can and do anesthetize better than others, the logic is obvious—to them should be entrusted the work.

And, though, in many cases it may be found impracticable to have special anesthetizers, that is the end for which and to which we should strive, and in the vast majority of cases our striving will be crowned with success.

DR. L. G. LANGSTAFF: I wish to draw attention to one point. A great deal has been said here to-night about different appliances used in anesthesia, and also about anesthetics themselves, but I think every one will agree with me that very much depends upon the anesthetizer and comparatively little upon the form of appliance used. It requires a great deal of experience and a great many cases in order to be a successful anesthetist. The experience will succeed with any appliance; the inexperienced may fail with all of them.

DR. F. J. SHOOP: Success depends largely upon the anesthetist and his familiarity with the anesthetic, and the appliance he is accustomed to using.

There are only two anesthetics which can be relied upon for prolonged anesthesia, and these are ether and chloroform. Chloroform should never be given in any appliance except some simple one, like the Esmarch inhaler. Ether apparently is given best in the Allis inhaler, or some inhaler pretty closely allied to it; and best if the gauze is not too tightly woven, the idea being to have a free evaporating surface, and to have the ether promptly vaporized. Better than the drop-by-drop method is the making of a very small pin-hole in the ether can. The warmth of the hand holding the can forces the ether out in a fine stream, which is almost a vapor itself.

I can realize the value of beginning with nitrous oxide gas or bromide of ethyl to shorten the first stage of anesthesia, and believe some such method will be the rule in all well regulated hospitals, as soon as its safety can be demonstrated.

DR. F. H. CLARK: Dr. Erdman referred to two forms of anesthesia, in which I have had a trifle of experience.

First and foremost ethyl chloride. I have used it a number of times in the Bushwick Hospital

lately in an inhaler that I think came from France—I do not know the name of it. It is an inhaler with two valves, a small bulb with a slight notch in which is placed a piece of gauze, and on which the fluid is sprayed. I took occasion within the last month to test it severely. I have a case there now which has multiple abscesses and required a very large number of operations and caused a great deal of trouble with the dressings. It was not thought advisable to use chloroform and I essayed the use of ethyl chloride. I have used it fifteen times in this case, and each time it has taken less than half a drachm and less than thirty seconds for complete anesthesia. There has been no trouble at all, no unpleasant symptoms and no difficulty in the administration of the same. I have asked the boy the sensation he felt, and he said he did not know anything about it—he simply went out.

I have used ethyl chloride as preliminary to ether anesthesia, but I have never used it with chloroform. I have used it for ether anesthesia, and I have found in some cases it acts well and in some cases it does not act at all. I remember one case in which I used it as a preliminary and the patient became cyanotic. In other cases cyanosis was not displayed at all.

With the next anesthetic my experience has not been very much, and that is hypnotism. I recall some years ago a case I had in the hospital, a young woman suffering from an unexplained and indefinable pain in the side and chronic insomnia. The efforts of the entire staff had been unsuccessful; we could not control the pain or get her to go to sleep. Every anodyne was used without success. A gentleman who learned of the fact came to me and talked hypnotism, and I said here is a chance. I took him to the hospital and explained the case thoroughly. He sat opposite the girl, took her left hand in his, ran his fingers down her arm, and said, "One, two, three," and then said, "You are going to sleep for five to seven hours, and when you wake up the pain will be gone, and when you wake up you will be perfectly well." In ten minutes the girl was fast asleep. The records show she slept seven hours and fifteen minutes, and the next day she left the hospital apparently well without the administration of any medicine whatever.

I took the gentleman in another room where I had a case for a perineorrhaphy, and I was afraid to give her an anesthetic. He said he would like to get her under control. I said, all right. He took her hand in his, and said, "I am going to

make this left hand of yours absolutely insensible to pain." He drew his fingers across her hand and said, "One, two, three." Then he handed the hand to me. I opened up the fingers and ran a needle through the muscles, and there was no evidence that anything was done to it at all. He took her hand again and said, "I am going to make this hand exquisitely sensitive." He repeated the same process and the hand became excessively sensitive. He then said, "What time do you wish to operate?" I said, "To-morrow at eleven." He said, "To-morrow at eleven you can operate." We prepared and got ready for the operation. I was a little bit skeptical, but the next day at eleven I repaired the cervix without any anesthetic whatever. The hypnotist was in New York, I was in Brooklyn. That is improbable, I know, and I do not blame you a bit for being incredulous, but that is a fact. The fact remains that I repaired that cervix and perineum. The woman was wide awake, and she did not know what happened to her for five hours afterward. The hypnotist had held her surgically anesthetic.

I have seen one other thing done in the way of hypnotism. I have seen a man stand up in the middle of a room, I being on one side with a watch in hand and finger on his pulse, and a physician on the other side with his finger on the pulse, and both of us counting a pulse of 68 and respirations of 22. I have seen that pulse worked up to 160 and the respirations to 44 in less than two minutes, and I have seen them brought down again gradually to 28 and to 68 again. That I have seen done more than once—absolutely.

I have seen the same person at the same time hypnotize a subject, and put a large aspirating needle right through the biceps without any evidence of feeling on the part of the patient, and when the needle was withdrawn I have asked the question, "Will that bleed?" and they said "No," and when the needle came out it did not bleed!

DR. ERDMANN: The subject of anesthesia certainly is one which deserves most careful attention, and I feel that those who are interested in the matter, as many of the internes in the hospitals are, deserve hearty support in their efforts to perfect themselves in this subject.

I wish that the gentlemen here who are connected with hospitals would help to bring about the time that Dr. Bogart spoke about five years ago, I think, in the discussion of Dr. Hotchkiss' paper. He said the time has now come to appoint visiting anesthetists in the hospitals.

THE BROOKLYN PATHOLOGICAL SOCIETY.

440TH REGULAR MEETING, APRIL 9, 1903

The President, ARCHIBALD MURRAY, M.D., in the Chair.

PAPER: SOME NOTES ON URINARY CASES. BY DR. Z. TAYLOR EMERY.

(See paper in this issue, p. 435.)

Discussion.

DR. H. A. FAIRBAIRN: Dr. Emery emphasizes the fact that the examiner must not rest his opinion of a case on a single or double or triple or quadruple examination of the urine. That can not be done, for even where these examinations have been made well, there is something else to be done, and that is for the general condition of the patient to be inquired into. Circulatory disturbances certainly produce numerous casts, and the clearing up of these circulatory disturbances causes the disappearance of the casts. That is a common observation. The chemical examination of the urine will confirm their significance.

I was in hopes that Dr. Emery would go something into the classification of diseases of the kidney, and give us his opinion of the modern classification as compared with that which Delafield gives. For myself, I think that Delafield's classification is not equalled, for he gives us one that combines both anatomical and clinical data.

DR. H. G. WEBSTER: About three years ago it was my privilege to collect, digest and analyze the returns from about 3,700 urinalyses at the Methodist Episcopal Hospital during the ten years previous, and while going over them I was impressed with the frequency with which hyaline casts were the only kidney symptom in carcinoma. This was true not only of advanced pelvic carcinoma, but of carcinoma that was only just recognizable, and it was my impression that in about one case in every five of carcinoma abundant large hyaline casts were recognized early in the urine. My attention having been turned to that as a diagnostic feature, I have since had occasion to notice their occurrence many times. It seems to me it is important if used as an auxiliary means of diagnosis as to the nature of a growth that does not always present malignant symptoms to the sense of touch and sight, if the hyaline cast can be recognized in the urine of a patient suffering with a suspicious condition.

DR. H. A. FAIRBAIRN: What do you think that comes from—disturbance of the circulation or toxemia?

DR. H. G. WEBSTER: I think it may come from either and probably from both. It is natural to suppose, and it undoubtedly is the case, that there is a certain degree of absorption of some toxic principle from the carcinoma, and especially from an abdominal carcinoma. These are more frequent in abdominal cases than in other classes, and as the growth advances, of course one gets the mechanical interference which produces difference in blood pressure in the kidney.

The same note has been made by Fenwick, a recent writer on carcinoma of the stomach, who calls attention to the frequency of renal symptoms, especially of albuminuria, with the presence of casts in carcinoma of the stomach. I think he claims it occurs in as much as one in three cases, and he regards this as a probable valuable diagnostic point. He also calls attention to the fact that a patient who excretes less than 200 grains of urea in the twenty-four hours, and who is afflicted with a chronic gastritis, is in all probability suffering from a carcinomatous condition of the stomach.

REPORT OF CASE. SARCOMA OF KIDNEY. BY DR. WARREN L. DUFFIELD.

Mr. X., sixty-two years, retired, was admitted to service of Dr. Delatour at St. John's Hospital on September 19, 1902, with the following history: Family history negative. General appearance good. No cachexia. Several years ago had an attack of acute articular rheumatism. Two years ago had a perineal section performed for relief of obstruction due to enlarged prostate. About this time had an attack of hematuria. His present illness dates back about two years when he began to have pain in region of left kidney and passed urine containing pus. For two weeks prior to admission to hospital the pains have been more severe than ever before, apparently true attacks of renal colic; he has had a number of chills and a septic temperature ranging from 99° to 102° F., the urine containing a small amount of blood, a large amount of pus and a very large number of uric acid crystals. An X-ray examination made at this time was negative, though one plate showed a shadow which was afterwards determined to be a defect in the plate. A blood examination made on the fourth day was as follows: Red cells, 5,270,000; white cells, 14,400; hemoglobin, 80 per cent. Physical examination

revealed a slight enlargement in left kidney, but this was determined with great difficulty. The treatment, which was excellent, consisted of rest in bed, milk and vichy diet and sodium borate grs. v twice a day, the urine being carefully watched with following results: From date of admission, September 19th to September 29th, it averaged 940 c.c. in the twenty-four hours, the sp. gr. varied from 1.012 to 1.020, and the urea from .7 per cent. to 1.8 per cent. It always contained a trace of albumin, large number of uric acid crystals, occasionally a few blood cells, with pus, epithelium and debris constantly present in varying amounts. On September 30th the quantity of urine dropped to 750 c.c., probably due to free catharsis and lack of fluids, as it was decided to expose the kidney the following day, October 1st. This was done through a lumbar incision, the kidney being delivered with considerable difficulty, due to large size, high position under ribs and its friability. On section the entire organ was seen to consist of a tumor mass, and it was accordingly removed with as much of the ureter as could readily be reached. The patient's condition contraindicated a long operation. No stone was found. The patient was returned to bed and made an uneventful recovery. On day following operation the urine amounted to 520 c.c., sp. gr. 1.024 and contained blood and pus. From this on it averaged 1.116 c.c., sp. gr. 1.017, and urea 1.5 per cent., with diminishing amount of sediment, an improvement over condition prior to operation. From time of operation he has continued to improve in health, strength and weight, and is apparently in perfect health (six months after operation). The pathological diagnosis of kidney was fibro-sarcoma.

Discussion.

DR. A. MURRAY: I saw this urine before the man was taken to the hospital. It misled me entirely. There was an enormous amount of urine, there was some pus, blood, a history of tenderness over the kidney. There were strings of blood passing down the ureter I thought, and I expected a stone would be found, but it proved to be a sarcoma.

DR. J. FUHS: Three weeks ago I saw a case of a lady fifty-six years of age. She had been suffering for a couple of months with what seemed to be a septic condition, evening exacerbations, chills and sweats and severe pain at the left side below the free border of the ribs about the axillary space. A mass could be felt, per-

fectly rounded and somewhat movable, at that place about the size of a large fist. I could get my hand above and below the mass and push it a little forward. It was very tender. A provisional diagnosis of abscess of the kidney was made and the kidney was supposed to be movable or displaced. The next day an exploratory laparotomy was done, and after the incision was made a sarcoma of the kidney was found. The wound was sewed up, and after about a week the kidney was removed, the sarcoma had broken down in part, and this was responsible for the sepsis. In this particular case the ureter had closed completely. There was no pus found in the urine, and if I am right only a trace of albumin.

Since then the other kidney has been performing its functions very well, and she has excreted 1,500 c.c. of urine in the last few days, and is apparently doing well. This is a case where the urine did not show any evidence of any breaking down of the kidney.

REPORT OF CASE: LARGE WHITE KIDNEY.

DR. JOHN HARRIGAN: The subject from whose remains this kidney was removed was a male twenty-nine years of age, married, admitted to St. Mary's Hospital October 8, 1902, died three days after admission. Patient was temperate in his habits, did not use alcohol or tobacco, no venereal history. Had measles, scarlet fever and diphtheria when a child.

About one and one-half years prior to admission to the hospital he was attacked with vomiting, headache, spots before the eyes, pain in the back and swelling of the face and extremities, which condition persisted for about six months. Then for a period of about nine months he enjoyed fairly good health. Four weeks prior to admission, after exposure to cold and wet, he had a recurrence of all his former symptoms, except the vomiting. He suffered from dyspnea on exertion.

Urinalysis: Light color, ammoniacal odor, alkaline reaction, specific gravity 1.008, slight amount of albumin, heavy deposit of mucus with crystals of triple phosphates.

Post mortem examination: Lungs, edematous; heart, left ventricle hypertrophied; liver, cirrhotic; right kidney enlarged, capsule slightly adherent, parenchyma slightly granular, cut surface white in color and hard to the touch. Left kidney similar. Microscopic examination shows entire absence of kidney structure.

REPORT OF CASE: CONTRACTED KIDNEY.

DR. JOHN HARRIGAN: The subject from whose remains this kidney was removed was a female, age twenty-seven years. She was brought to the hospital in the ambulance suffering from intense dyspnea and in a state of coma. Admitted February 4th, died February 9, 1903. Had enjoyed fairly good health until about ten days prior to admission, when she complained of headache and suffered from dyspnea. On the eighth day stupor set in, so that she could scarcely be aroused, breathing became rapid and dyspnea urgent. Face became puffed and cyanotic.

Urinalysis: Scant in quantity, dark amber in color, reaction acid, specific gravity, 1.030. Albumin 35 per cent. by volume. Crystals of uric acid, leucocytes and granular casts present.

Post mortem examination: Kidney normal in contour, capsule slightly adherent, surface smooth with marked capillary congestion, cortex mottled, white, red and gray.

REPORT OF CASE; SPECIMEN: FOREIGN BODY REMOVED FROM TRACHEA; TRACHEOTOMY.

DR. J. A. LEE: This foreign body which I removed from the trachea of a child this afternoon is not in the line of work we are doing to-night, but I think the presentation of the case and the history may be of some interest.

As you see, it is the clasp of a watch chain. Dr. Hynes referred the case to me for an X-ray examination. The child this morning was playing with that clasp of a watch chain, and swallowed that part of it. When Dr. Hynes was called the child was giving evidence of pronounced dyspnea. He used medicinal means to try and dislodge the clasp from the trachea, but they were unsuccessful. He took the child up to the hospital, and on X-ray examination the clasp was found to lie within the trachea beneath the vocal cords; at least that was the position we judged it to be, because on fluoroscopic examination a foreign body showed in that location.

We immediately performed a low tracheotomy on the child under chloroform anesthesia, and without very much difficulty we were able to pull the clasp out of the trachea. The child this evening seems to be getting along all right. The only criticism possibly that one might make on the operation was due to the fact that we put in a tube into the trachea afterward. I believe in cases of this kind it is customary to sometimes sew up the trachea completely without putting in drainage or a tracheotomy tube. We were a little bit afraid

to do that in this case, and inserted the tube and the child seems to be doing pretty well.

REPORT OF CASE; SPECIMEN: PERFORATION OF GALL-BLADDER INTO THE DUODENUM.

DR. F. W. WUNDERLICH: I have not got the full history of this case, but I present the specimen. It is a case of perforation of the gall-bladder into the duodenum just below the pyloric orifice, and the case is interesting particularly because of the absence of all symptoms that would show the development of perforation. When the perforation took place, a few days before death, there was collapse, but prior to that, for weeks, the patient did not have any noticeable pain at all. Although a tumor could be felt, there was so little tenderness on pressure that it was impossible to make a correct diagnosis. The case was seen by Drs. West and Janeway and Fuhs, and neither one of us could satisfy ourselves what the cause was.

She showed symptoms of obstruction of the pylorus, because for several weeks she kept vomiting frequently, but the most distressing symptom was hiccough. None of us could satisfy ourselves exactly that there was a complete obstruction. I think that for quite a while the pressure on the duodenum caused a partial obstruction and was the cause of the persistent vomiting.

On post mortem it was found that the hepatic flexure of the colon was adherent to the lower surface of the liver. The liver was a little bit abnormal in size. When these adhesions were broken up a little pus escaped, but the gall-bladder itself was adherent to the duodenum, and on making incision into the stomach and coming down to the pyloric orifice, it was seen that the lumen of the bowel was obstructed by the wall that had been perforated and was hanging down and a gall-stone was leaning against it, and they were occluding the bowels just like a valve.

The interesting part is the absence of pain, because the patient at no time complained of any local pain at the site of the gall-bladder. During the last few weeks there was no elevation of temperature and only a short time prior to death an increase in the pulse. Up to within four days of death the pulse remained below 90, the temperature normal, sometimes subnormal.

I would say that I made out a distinct tumor at the site of the gall-bladder, but there was no great pain and no great tenderness. The patient would not hear of any operation under any circumstances.

SECTION ON PEDIATRICS.

Regular Meeting of the Pediatric Section, held Friday, June 12, DR. FRANK W. SHAW, chairman.

SCIENTIFIC PROGRAM.

TREATMENT OF ACUTE GASTRO-ENTERITIS, DR. GEO. F. LITTLE.

In the series of papers for presentation to-night the treatment of acute gastro-enteritis has been assigned to me. The design of this meeting seems to be that we should sharpen our weapons and burnish our shields against the foes that hot weather brings to the little ones. Therefore, while there seems to be some argument regarding nomenclature and classification, I shall consider this subject as synonymous with summer diarrhea.

Whether cholera infantum is, or is not, properly included under this head need not be discussed, as its treatment will be covered by another.

As in many other conditions, an ounce of prophylaxis, in this disease, is worth a pound of drugs. We desire fresh air in allopathic quantities, sunlight, cleanliness, good food and proper methods of feeding; together with attention to minor derangements of the gastro-intestinal tract, especially that, usually unnecessary, Satanic heritage—constipation. One of the frequent causes of this latter trouble is insufficient fluid. Infants, like adults, need somewhat less food and more water during the heated term. Thousands of our babies, who are at the breast or upon bottle feeding, receive no water at all. These infants, could they speak, would cry out "Water, water everywhere, but not a drop to drink." This is a field for daily missionary work, impressing also upon the mothers the necessity of boiling the water.

Our prophylactic charities—the seaside homes, fresh air funds, floating hospitals—the free distribution of pure milk and ice—save hundreds of lives each year. May such work prosper and its usefulness extend! Libraries and college endowments are of good effect, but let us save the children first!

To those who can afford it, and all but the poorest may, we must speak of the certified milk, so carefully watched over by our Milk Commission.

Where prophylaxis does not obtain, there treatment must often be instituted. Again, fresh air—in almost all cases keep the little patients out of doors the better part of the day during an attack—in the yard, on the roof, on the fire escape.

Shelter them well from the sun and keep them quiet.

Help the skin to eliminate and make the child more comfortable by cool baths twice a day—water at 90° F. cooled to 80° F. These may be employed every three hours if the temperature be high.

At the onset of the disease a cathartic is indicated—castor oil, if no vomiting, calomel otherwise. Of the oil give a teaspoonful to an infant under one year, two teaspoonfuls if over that age; of the calomel give gr. 1/10 every half hour, six or seven doses, followed, two hours later, by a saline, if necessary. A repetition of this, during the course of the disease, may be called for should there be signs of increasing intoxication, the development of nervous symptoms, marked rise of temperature, etc.

All nourishment may well be stopped for at least twelve hours—water being given frequently in small quantities. The concentrated fluid foods may then be used, varying the diet with albumin water and weak animal broths. This change of diet for even twenty-four hours, together with the cathartic, will often abort a severe attack, if used when the mildest symptoms of disturbance of the gastro-intestinal tract appear.

Mechanical treatment in summer diarrhea certainly deserves consideration, prior to the discussion of drugs. In practically all of the cases, I believe that one or more irrigations of the colon are called for. In the more severe types this is something of a *sine qua non*, a thing to be used regularly and to be depended upon for benefit. Such irrigations may be used twice daily until there is marked improvement, then once a day until danger is past.

The technique of this procedure is doubtless familiar to those present, yet it would seem that this paper would hardly be complete without speaking upon such an important subject, for the technique is important. Proper protection of the bed, and arrangements for drainage, dorsal or lateral position, hips elevated somewhat—these matters, of course, pertain as in adults. A soft rubber catheter—26 to 30 French—is attached to a fountain syringe, and, after being lubricated, is gently inserted. In my first experience with a child, the catheter was inserted numerous times, but its business end invariably popped out of the anus just when it seemed that the instrument had passed far enough. Pass the catheter a couple of inches and then turn on the water; this will stiffen it and open the tunnel ahead. The bag is filled with plain salt water—a teaspoonful to a pint—

it is elevated not more than three feet above the patient. The saline solution is heated to 100° F.—107° to 110° F. in collapse. The sigmoid flexure is long in an infant and makes a sharp angle with the descending colon; the tube should therefore be passed upward eight to twelve inches. The irrigation should be free—certainly until the water returns clear, several quarts or a gallon being used. In perhaps the usual method, the catheter is kept in situ, and after a quantity of solution has been injected, it commences to return in spurts alongside of the tube. This forcible return would indicate distention and I do not believe that the unnecessary ballooning of an inflamed gut is to its advantage. Figuring that the colon of an infant of six months holds approximately a pint, at two years two to three pints, it would seem better to inject the estimated quantity and then detach the catheter for some return flow, repeating the process as often as necessary. Where vomiting persists at the beginning of the disease the washing out of the stomach is indicated—one washing often suffices. This procedure may be carried out either in the sitting or prone position. The tongue should be held down by a finger, which is kept in the mouth during the presence of the tube. A funnel and two or three feet of rubber tubing, connected with a soft rubber catheter—21 F. for infants under six months, 25 F. for those older—constitutes the necessary apparatus. An additional eye may be cut in the catheter, care being taken to leave no rough edges. The patient's hands must be confined by a blanket pinned closely to the body. The catheter, after being moistened, is passed eight to ten inches beyond the lips. I am accustomed to use a one per cent. bicarbonate of sodium solution for washing, from two to six ounces being used in each filling of the stomach. Older children do not bear this process well—they may be persuaded to drink a quantity of saline solution, lukewarm. This is nauseating and effects a partial washing.

With respect to drugs—opium is the most used and the most abused. It lays a soothing hand upon the right case at the right time, chokes Dame Nature off in her efforts to eliminate, in the wrong case, or at the wrong time. It must not be given as a part of regular treatment, but only when a distinct necessity for it arises as when the diarrhea is excessive and not controlled by other means. Especially when the stools are large and watery, or when pain is excessive, it is required. Yet never until the intestine is well cleansed by frequent movements and by irrigation. It is contraindicated when the number of stools during

the twenty-four hours is not large, and if their odor be very offensive, certainly cleaning out is necessary, not the checking of peristalsis by opium. Holt wisely says that it *must* not be given when cerebral symptoms and high temperature coexist with scanty discharges.

In the fluid form I prefer the camphorated tincture—℥ vi. every two hours for several doses, then every four hours, for a child a year old. In the solid form, Dover's powder is convenient as

R

Hydrarg. chlor. mite. gr i
Pulv. Doveri gr iij
Bismuth Subnit. ʒi
M. et div. in chart No. xii

This is used at same intervals and age as above. Morphia may be used hypodermatically in doses of gr. 1/100 at this age.

The subnitrate of bismuth is a drug that I frequently use in these cases. Rather large doses may be given—ten grains every two hours to a child of two years. If the stools are offensive, a grain of salol may be added to each dose of the above. It is to be remembered, of course, that bismuth will change the color of the stools to a gray or black.

The salicylate of sodium I do not use, as it is liable after a time to upset the stomach—a consummation not to be desired. Astringents and mineral acids may be indicated late in the disease.

Stimulants are necessary when there is much exhaustion. The advisability of bringing whiskey or brandy in contact with an already irritated or inflamed gastric mucous membrane is questionable. If the necessity be great and the stomach seems able to tolerate alcohol, a fine cognac is preferable, but good whiskey is better than doubtful brandy. At one year, twenty drops may be given in a tablespoonful of water, every two hours. Champagne is to be desired in older children.

Strychnia is of service in doses of gr. 1/300, every three hours, at six months to a year—the dose may be temporarily increased to gr. 1/200.

Nervous symptoms, if developed, are controlled by the bromides—sodium bromide is perhaps best, gr. iij-x, every two hours, well diluted.

In extreme cases, where the amount of fluid lost from the body is large and collapse imminent, the injection of normal saline solution into cellular tissue may save the life—the usual quantity is eight ounces. This may be repeated in twelve hours or less if necessary.

In convalescence the tincture of nux vomica acts well as a tonic—℥ v. diluted, to a child of two years.

TREATMENT OF CHOLERA INFANTUM.

BY DR. W. C. SCHOENIJAHN.

In comparison with the ordinary types of gastro-intestinal disease in children true cholera infantum is, to-day, rare. The term is frequently wrongly applied to the severer cases of acute gastro-enteric infection, and to be sure, there is no sharp clinical division between these and true cholera infantum except the rapidly overwhelming toxemia and abstraction of fluid in the latter condition. This article is restricted to the consideration of the treatment of that type of general choleriform diarrhea which is characterized by constant vomiting, insatiable thirst, high temperature, profuse serous stools, pinched, sunken features, sunken fontanel, great restlessness followed by rapidly developing collapse, cold extremities, dyspnea, cyanosis, coma and too often death. In short, the picture is much like that of Asiatic cholera or ptomaine poisoning.

As a rule the disease is secondary to acute gastro-enteritis or supervenes upon a subacute condition. We have here the first key-note in prophylaxis in the proper early management of milk indigestion, gastro-enteritis and even the mildest diarrheas in children. Restricting the term to cases of true cholera infantum, even the best authorities admit that treatment is most unsatisfactory. Severe cases go on to a fatal termination regardless of our efforts.

It is well to remember that these are essentially cases of profound toxic poisoning, and that we are no longer treating the intestinal catarrh or inflammatory condition; that the toxic materials are overwhelmingly depressing to the heart and vaso-motor systems of the intestines through the nerve centers; that the diarrheal discharges are to an extent the eliminative effort of nature, though severely damaging by their drain upon the resources. They are distinctly emergency cases.

The main indications in treatment are: 1st. The emptying of the intestinal tract. 2nd. The combating of the effects of the poison upon the heart and nervous system. 3d. The supplying of fluid to the circulation to make up the severe drain of the discharges. 4th. The reduction of temperature and treatment of symptoms as they arise. In considering the first indication we must keep in mind that there is no time to be lost waiting for the action of our favorite cathartics. Stomach-washing and intestinal irrigation must be our mainstays. At least a gallon of salt solution or plain boiled water should be used in the intestinal irrigation, which may be repeated in three or four hours. If the temperature of our patient is very

high ice-cold water may be used for irrigation, or if collapse is already threatening the water should be hot, as warm as 110° F. By this means we not only remove the offending material from the bowel but aid in combating shock or dangerous temperature, as well as stimulating the kidneys to an elimination of toxic substances. The second indication, the neutralizing of the poisoning of the system is met by the use of stimulants such as strychnia and alcohol, and, as advised by both Holt and Roche, the hypodermatic use of morphine and atrophine. The effect should be carefully noted, repeated small doses being thus safe of administration. For a child of one year it is advised to use not more than 1/100 gr. of morphine with 1/800 gr. of atropine. These are carefully repeated every hour until arrest or diminution of the vomiting and purging, and improvement in the heart's action and nervous symptoms are secured. We are warned against using morphine where stupor or drowsiness or meningeal symptoms exist, or after the purging has ceased. For our third indication in treatment there seems to be but one reliable procedure. Only by the subcutaneous infusion of fluids can we hope to restore the moisture which the tissues so urgently need. The well known solution of common salt about 45 gr. to the pint of sterile water is used, and at least a half pint is injected every 12 hours. Less than this will do no good, and larger quantities can be used without danger. The bulb syringe is the most reliable instrument for injection, obviating the stoppage of flow sometimes met with in the use of the fountain syringe. If the administration be made slowly, and the fluid is warm, fairly large quantities may be injected with safety. It is hardly necessary to advise asepsis or warn against the entrance of air into the tissues. High temperature is to be controlled by the application of ice to the head, the ice water injections, introducing the tube as high as possible and allowing the water to flow freely in and out; and the graduated bath, repeated as often as every hour if necessary, and continued each time for ten minutes. The temperature of the bath should be 100° F. to begin with, and lowered by means of ice to 85 or even 80 degrees. Friction should be active and the head kept cooler than the body. Another method of lowering temperature which serves the purpose also of a circulatory and respiratory stimulant is friction over the whole body with a towel wrung out of water at the temperature of the room and sprinkled with common salt. This will be found to be particularly soothing to the nervous system.

During our active treatment nothing should be administered by mouth except ice, and possibly our alcoholic stimulants. In the stage of collapse with cold extremities and possibly subnormal temperature the warm pack at 100° F., or the mustard pack, or mustard paste covering the whole body until thoroughly red, with hot water bags and bold stimulation, is indicated. The mustard paste is made in the strength of one part powdered mustard to four or six of flour, made into a paste with lukewarm water and spread between two layers of muslin. Its action is usually secured in about ten minutes. It may be used every three hours.

Having weathered the first storm, the return to diet must be particularly gradual, as relapse is an ever present possibility. At first articles requiring little or no digestion and leaving the smallest residue should be tried. Liquid peptonoids in very small and dilute quantities, whey, koumyss are suggestions. Later one may begin a weak formula of modified milk, increasing the strength gradually. It may be well to begin with fully peptonised milk.

Of medication there is little to be done by mouth. After the first danger has been passed it is well to give a digestive ferment to avoid intestinal decomposition of unpeptonised material. All the so-called intestinal antiseptics have been mentioned as of value, but drugs by mouth are to be avoided. The various forms of bismuth give the best results according to most authorities, but should be given in massive doses to get the proper effect. Ten grains every two hours of the subnitrate, suspended in boiled water, is not considered too much for an infant. It is wise to avoid medication by mouth, however, relying on the other measures outlined to meet the indications.

DISCUSSION.

DR. EDSON: The papers are so complete that they leave little to be said. As regards these diarrheas, I have often given the following, with happy results, in the proper stage:

R
Ac. sulph. dil. ℥ 15
Spts. chlorof. ℥ ii
Tr. opii camph. ℥ iss
Ol. cloves ℥ v
Syr. ginger; to ℥ iii

Dose is one drachm. It does good work. The past two years I have also used a starch lump with brandy. In the main, I agree with the papers.

DR. AGER: Opium is used too much; in fact, I question whether it is wise to use it at all. For irrigation, I use a glass tube of my own invention. It is slightly bent two inches from the end, about 15°, three inches further up, is another bend in opposite direction, which gives it a corkscrew shape. When using bismuth, I use the beta-naphthol entirely, as it is more astringent.

DR. KINNE: All of the measures of irrigation are good, but what if you are doing this work among ignorant people? It is not well carried out. I find dilute hydrochloric acid fine, in small doses. It is often well to let a child drink a lot and then vomit, for stomach washing.

DR. BARTLEY: It is the wise thing to do to withhold all milk, but where there is no vomiting, give whey and barley water, equal parts. Gradually increase it with or without a stimulant. It is not wise to withhold all nourishment. There is no need to reduce the sugar, the child needs it for heat.

DR. LITTLE (closing for the writers of the papers): I have nothing to add, except to draw attention to the criticism of opium; in reply to this I call your notice to what was said about it in my own paper. As regards the glass tube mentioned personally, I would not use it. Its use must be attended with danger to a struggling infant.

BROOKLYN GYNECOLOGICAL SOCIETY.

FREDERIC J. SHOOP, Editor.

Stated Meeting, June 5, 1903.

HYSTERECTOMY FOR GENERAL FIBROID CONDITION OF UTERUS—SEVENTEEN YEARS AFTER GALVANO-CAUTERY AMPUTATION OF CERVIX.

DR. J. W. HYDE: I exhibit this specimen and the feature of interest in the case is the fact that I removed the cervix at the utero-vaginal junction with the galvano cautery, about seventeen years ago. The uterus at that time was very large and subinvolved from bad lacerations, and the cervix was a marked exhibition of ectropium.

I cooked the cervical canal moderately at the time of that amputation. No stenosis resulted. The uterus was reduced to a practically normal size in a reasonable length of time. Her serious nervous reflexes abated. She married later again and has been living West. This patient has been suffering for the past five or six years with intol-

erable pelvic pain, headaches and general nervous condition. They were not due to the approaching menopause, as the enlarged and very hard uterus shows ample cause for her condition. She has menstruated up to the present time and she is 53½ years old. The amount of pain and the general pelvic disturbances were so great that she insisted on an operation for relief. In this patient I found a condition of semi-paralysis of the bowels existing, large doses of medicine accompanied with enemas giving unsatisfactory results. For three weeks before she came back under my care she had practically no proper movement of her bowels, and suspicions were entertained that the intestinal tract was obstructed by adhesions, which fact, however, was not demonstrated by the operation, or certainly not to such an extent as to satisfactorily account for the paralysis of the bowels. I opened the abdomen and found very general adhesions around the uterus and adnexa, and this exceedingly hard uterus. It is not quite so large now as before it was placed in the formaline solution. The uterus and tissues surrounding cut as hard as any fibroid I have seen. It was practically impossible to strip off the peritoneum from the space above the bladder—it had to be done by clipping it down, and in some parts you see the muscular structures of the uterus have been disturbed by that action. I am at a loss to know whether this condition is a sequence of the galvano-cautery work of seventeen years ago or not.

ECTOPIC GESTATION ; OPERATION ; DEATH.

DR. J. W. HYDE: This specimen is an ectopic gestation. I present it simply on account of two points of interest. This woman I saw the middle of last week. She had been weakened by very unusual pain (she was a large, healthy woman) and with great distress, about one or two o'clock in the morning, and she rapidly went into a collapsed condition. Her husband obtained a physician as quickly as possible, who diagnosed the case as ectopic, but he said he did not believe anything could be done for the woman she was in such a bad condition of shock and collapse, and he devoted his time to try to bring on a reaction.

I was called in at 10.30 the next morning. It was a flat apartment and a very bad place to think of any operation procedure, so she was removed to the hospital, and operated upon as soon as possible. I found the fetus and the tube readily as soon as the large blood clots were removed.

The feature of interest here is the fact that the attachment was directly in the cornua—rather an

unusual implantation of placenta; the finger could be passed very readily right into the body of the uterus, and, as you will see, this, to all intents and purposes, is a full three months' pregnancy.

According to Charles S. Minot, Professor of Embryology at Harvard, that cannot be a three months' fetus, because, if I understand him, he says, that ectrophy of the abdominal viscera is not present at three months. That is a condition that exists prior to three months' pregnancy. But here you have a very beautiful illustration of ectrophy of the bladder and all the abdominal viscera.

The patient lived thirty hours after the operation. There was an intravenous transfusion of two quarts of normal saline into the arm besides active stimulants. She rallied somewhat, but never completely, from the shock and collapse she was in.

DR. J. O. POLAK: This uterus impresses me as one the site of an endarteritis. There are a large number of cases that all of us have seen that present menstrual vagaries and a great deal of pain—premenstrual, comenstrual and postmenstrual, referred to the uterus, and in which there is no acute inflammatory condition anywhere about. These uteri are frequently curetted, and nothing removed but the endometrium; they continue to bleed irrespective of medication and treatment.

When these uteri are removed, if you split them, you will find they are similar to this. The condition has been described by several men within the last few years, particularly by Finlay, of Chicago, as an endarteritis, and the more cases I have that are unyielding to treatment, so far as pain and metrorrhagia are concerned, without any gross pathological parametric enlargement, the more I come to the conclusion that these cases should be classed under this pathological condition to which he calls attention.

I have seen personally 7 or 8 cases within the last year since coming across Finley's work on the subject, 5 of which I had curetted without any good, and one had been curetted 8 times before I saw her. They were under 35 years of age. There was no evidence of diseased blood vessels in other parts of the body. These women started with menorrhagia, had anteflexed uteri, commenced with dysmenorrhea at the beginning of their menstrual life, and were sterile. These irregular hemorrhages were sometimes extremely profuse. There was nothing in the condition of the blood vessels outside of the uterus, that would suggest any changes in the blood vessels

of that organ, so putting two and two together, it seems they are a class of cases that we have learned to consider as congenital anteflexion with arrested development and frequently complicated, as Dr. McNaughton called attention to some time ago, by the development of fibroids. It is a general fibrosis, extending to the walls of the vessels and causing endarteritis, or an inflammatory condition that produces endarteritis. According to the microscopic findings, it is practically a tissue hyperplasia. You get a diminution in the amount of muscular fiber and an increased amount of stroma in the organ. Of the vessels themselves the media is changed, but the intima is not.

DR. W. B. CHASE: It may be that the adhesions found in this particular case about the uterus are in part a result of the thermo-cautery at the time of the amputation.

I should presume that the theory suggested by Dr. Polak, or that of fibroma, would account for the density of hardness of the uterus. If it is carcinomatous it is probably of recent origin.

Regarding the other specimen, I should like to ask Dr. Hyde whether he found this fetus free within the peritoneal cavity? Whether rupture occurred directly through the walls of the uterus or Fallopian tube into the peritoneal cavity? The majority of cases rupture in the proximal portion of the tube—do not break through into the peritoneal cavity, and the peritoneum acts as a barrier to the profuse hemorrhage likely to attend these cases. Here there was a rupture of the tube and perhaps a portion of the uterine structure and the fetus was extruded practically into the peritoneal cavity.

DR. FRANK BALDWIN: Reasoning from analogy we might expect this change to take place in the uterus as it is precisely what occurs in the prostate gland of men—first enlargement, then gradual contraction and hardening with marked changes in the walls of the vessels.

DR. J. C. MACVITT: Judging from the comments I have heard on Dr. Hyde's specimen, a case I saw but two weeks ago is relevant to the subject. It was one in which Dr. Byrne six years ago did his operation of high amputation, and it gratifies me in a way to say that your premises are correct in this case. The uterus was greatly enlarged, exceedingly tense and caused pain on pressure.

The case was such that I did not feel justified in suggesting a hysterectomy. I believe in all these cases of high amputation where there is a return of the disease, that this condition of hardening or sclerosis follows. This verifies the case presented to-night. On gross appearances this

specimen does not present the characteristics of a carcinomatous uterus. The enlargement following amputation of the cervix for cancer means simply an extension of the disease to that portion of the uterus remaining.

SPECIMEN FROM AN OVARIAN DERMOID.

DR. JEWETT presented a specimen from a dermoid cyst of the ovary removed about three weeks ago. The diagnosis was easily made before operation owing to the presence of a partially ossified cartilaginous plate which could be distinctly felt underlying the cyst wall. The specimen consisted of a nearly straight piece of bone, or partly ossified cartilage, with the plate referred to at one end and a few square inches of dermal membrane at the other. Three or four teeth were embedded in the bony structure and hair grew from the dermal membrane. A small mass of tangled hair lay apparently free in the cyst.

Dr. Jewett also called attention to the value of metal clips or wound fasteners for closing the skin incision in abdominal operations. He had employed them for two or three months with great satisfaction. The wound was closed more rapidly, neatly and securely than with adhesive straps. The incisions had almost invariably healed *per primam* leaving a mere linear cicatrix.

The method he thought possessed many advantages over the subcuticular stitch and any other of the various methods he had hitherto employed.

DR. W. B. CHASE: I remember a case I had two years ago, in which I removed a dermoid of the ovary, the size of a large orange. I submitted it to Dr. DeForest for examination, and the remarkable fact was that the dermoid had so displaced the ovarian structure that it was entirely lost—no trace of it whatever.

I might mention in this connection another feature of this case, which was of interest. One reason the woman was operated on was (she was a well developed woman) she had been married for four years and had never become pregnant, and at each menstrual period the pain was not only unbearable, but the nervous tension was so great, that the woman herself believed she would become insane, and it was for that reason she asked that the operation be performed. I do not recall the condition of the other ovary, but she did not menstruate for a long time.

DR. H. C. KEENAN: I think that the most interesting point about the whole subject is that of diagnosis. In fully half of the number of specimens that I have seen in the different societies,

there has been a mistake in diagnosis. The tumor was supposed to be a fibroid, an old pus tube, or an ovarian cyst.

The histories given in these cases should be very complete, not only as to whether there have been peritonitis and adhesions, but also as to the previous history, their situation and the general symptoms to which they give rise. A short time ago I saw a cyst which had all the classical symptoms of a dermoid. It was in front of the uterus, not of very large size, exquisitely tender and with a history of three or four attacks of peritonitis. I made a diagnosis of dermoid, but it proved to be an ovarian cyst with a twisted pedicle. Just why the patient should have had three or four attacks of peritonitis during a period of eighteen months and why suppuration did not take place in the cyst, I do not know.

I looked up the subject shortly afterward, and was surprised to find what glittering generalities most authors dwelt on, each repeating what the previous one had said, and devoting most of the space to describing the contents of the sac instead of elaborating points in the diagnosis. I think this is an important matter, because it is the point upon which so many men trip. Kelly states that a cyst persistently remaining in front of the uterus has 50 per cent. of chances of being a dermoid.

DR. J. C. MACVITT: Dermoids may exist without giving symptoms for a long time, and then when they take on conditions of degeneration they produce all kinds of symptoms.

A remarkable result of rupture of a dermoid that I saw not long ago was this: The patient gave all the symptoms of intestinal obstruction and a constriction of the small intestine was found. A dermoid cyst had undergone degeneration with two or three pin-hole openings, which gave egress to the contents of the sac; the irritant nature of the fluid produced an intestinal peritonitis and adhesions in the small intestine resulting in complete obstruction. The adhesions were broken up, the intestine released, and the dermoid removed, with recovery of the patient. In making your diagnosis between an ovarian cyst and a dermoid and an ovarian cyst with a twisted pedicle, the symptoms are almost alike. In the latter you get the sudden pain, the same as in a dermoid.

I remember the case Dr. Keenan refers to very well. We had various opportunities of examining, and the question came up as to its nature—a dermoid, a parovarian cyst, or a cyst in the broad ligament. I made a diagnosis of cyst in

the broad ligament on account of the pain, and it turned out to be a parovarian. At the same time I said, in my opinion, it was either a parovarian cyst or a dermoid undergoing degeneration, and it would be impossible to differentiate between the two, because the symptoms are almost identical.

FIBROID OF UTERUS; PANHYSTERECTOMY.

DR. O. A. GORDON: This specimen was removed from a patient 47 years old. The point of special interest to me is that up to within two months of the operation there were absolutely no symptoms. Then she began having hemorrhages and pressure symptoms. The recovery was uneventful in every way.

Discussion.

DR. J. O. POLAK: I want to say one word on fibroids. I think with Dr. Keenan we are misled in diagnosis a great many times by the teaching of many of the books, that the clinical symptoms of fibroids are hemorrhage and leucorrhea and subsequent pressure symptoms as the tumor increases, when as a matter of fact there are a large number of cases which give no symptoms whatever. It depends almost entirely on the seat of the fibroid. You can have a fibroid anywhere except close to the mucous membrane of the uterus and get no hemorrhage. The hemorrhage comes from the endometritis consequent upon the fibroid, and not from the fibroid at all; and, consequently, too much stress has been put on hemorrhage as a symptom in the diagnosis of fibroids. I want to mention that in order to have it go on record.

DR. W. E. BUTLER: That is an interesting point of Dr. Polak's in regard to the question of symptoms from fibroids.

I presented a fibroid specimen here last year which occurred in a woman 65 years old, who had absolutely no symptoms from that tumor until I was called to see her, and then she had a profuse hemorrhage due to the degenerative condition and rupture of one of the smaller vessels in the uterus.

I saw a short time ago a school teacher about 45 years old. She had a tumor extending up to the diaphragm. It was a tremendously large tumor of the uterus itself, and above that another one. She had absolutely no hemorrhage, pain, or pressure symptoms, nor symptoms of any kind. The only thing which worried her was the increasing size. She was unmarried.

LARGE OVARIAN CYST: FLUID PARTIALLY WITHDRAWN WHEN FIRST TAPPED; SAC COMPLETELY EMPTIED ON THIRD TAPPING.

DR. H. C. KEENAN: This case occurred at St. Mary's Hospital on Dr. MacEvitt's service, and we thought the procedure adopted was somewhat of a new departure.

A woman over 60 came into the hospital with a large ovarian cyst filling up the whole of the abdominal cavity. She refused operation repeatedly after coming in, and finally got in such a condition that she had to sleep sitting in a chair on account of dyspnea and other pressure symptoms. Finally she consented to have something done. A small incision was made under cocaine in the abdominal wall right down to the cyst. The cyst was found adherent to the parietal peritoneum. A small incision was made into the cyst and two silk ligatures passed on either side of the incision. A certain quantity of the brownish fluid contents was let out through this incision. After half of it was out she began to cough and the silk ligatures were tightened to prevent any more of the fluid coming out. She was sent back to bed for two days, and then some more of the fluid was withdrawn, some of it was thick like blood.

The third time the remaining portion of the fluid was allowed to escape, the inside of the cyst was washed out with a salt solution and a small rubber tube was placed in the cyst so it could drain.

The procedure relieved the patient entirely from all the pressure symptoms. The evening the fluid was first let out she slept, which she had not been able to do before, and since then she has been in fine condition. There has been no rise of temperature whatever.

Discussion.

DR. POLAK: I have met four cases in the course of my experience where I have been unable to remove the cyst that I have drained. One lived and three died of sepsis.

DR. BUTLER: On Dr. Jewett's service at Long Island an enormous cyst was tapped through the vagina. The patient developed some trouble, and the next day the abandoned cavity was opened, and the whole peritoneal cavity was found full of septic material, and she died of sepsis.

DR. CHASE: I have an impression that a great many lives have been sacrificed unwittingly in times past by the puncture of ovarian cysts supposed to be cases of ascites. I saw it done once

and the case survived, but in other times and in other years, the diagnosis not being well differentiated between ascites and ovarian cyst, I have no doubt many of them have been drained, and that accounts for the mortality which attended paracentesis for trouble in the peritoneal cavity years ago.

DR. MACEVITT: In the case Dr. Keenan related the woman entered the hospital with an immense ovarian cyst causing compression of the thoracic organs. She absolutely refused an operation. I told her friends at the time that I did not believe it could be removed successfully, but that there was a chance 1 in 100. She said she preferred to die rather than be operated on, but as the dyspnea became intense she asked that some relief be given to her.

We know in the removal of a cyst of such proportions that shock is one of the chief elements of danger. When the pressure is removed from the vessels, the patients practically bleed into their own vessels, producing this condition of shock.

What was to be done with this state of affairs? In an ordinary puncture of a cyst, if there are no adhesions, the cyst walls fall back into the abdominal cavity, and you will get the condition that Dr. Polak has spoken of—sepsis from a degeneration of the sac. My object in resorting to this procedure was to have the sac walls nourished by the abdominal peritoneum. Hence, under cocaine, I made an incision into the sac, and put silk ligatures on each side of the sac wall embracing a portion of the muscles, and not wishing to empty the sac at once let probably one-half of a gallon of the fluid escape, and then by tying a slip knot, closed the opening temporarily.

In a few days again we untied the threads and permitted more fluid to escape. This we again repeated and took out all the fluid, which was of a grumous character, thick and jelly-like. There has been no increase of temperature whatsoever. After the first operation she was able to sleep for the first time in weeks, and her general condition is good.

Now I had this in view: If this patient's condition improved to any extent I would be justified in doing a radical operation and removing that cyst wall, and I hope that will be the result.

The procedure is not analogous to paracentesis. It is an entirely original method of treating these conditions, and I only hope her condition will so improve, that I will have an opportunity of removing this sac. There are nodules, which simply mean adhesions—probably the uterus and adnexa are all involved, and I can understand that

in a case where such adhesions exists, this procedure is one that possibly may not result successfully.

DR. POLAK: I do not think there is any doubt if the drainage can be properly established and maintained with adhesions to the parietal peritoneum, that the Doctor is going to get obliteration of the sac. We used to do that in old cases that were inoperable, then draw off as much fluid as we could and draw out as much of the sac as we could and sew up, and a large number (that did not die of sepsis) got well. I remember Dr. Skene doing a number of these cases, but the ones that I had been unfortunate enough to see were cases where on getting into the abdominal cavity the cyst was so densely adherent, that it meant practically that the case was inoperable, so far as I was personally concerned. A case inoperable to one man may not be to another. In this case I did not perform a gradual letting off of the fluid, as the Doctor has done, which is an ideal and novel plan, for although the sac wall was sewed, it was so adherent to the peritoneum that it could not be separated. Out of four cases, three died of sepsis varying in periods from 30 to 40 days.

REPORT OF CASE: TWIST WITH ADHESION OF UMBILICAL CORD IN STILL-BORN FETUS.

DR. L. G. LANGSTAFF: Some time ago I attended a young woman delivered of a six months dead fetus. On examining the fetus, I found that about $1\frac{3}{4}$ " of the funis immediately adjacent to the umbilicus was very very thin, probably not more than one line in diameter. The rest of the cord was somewhat enlarged. There was a twist in the cord at this narrow part of about one turn and a half. Apparently that would seem to be the cause of the death of the fetus, but on looking up the subject I find it stated that such a condition is a result of the death. This woman has since been delivered of a healthy child. What I most desire to know is the cause of the death of the fetus. There had been no hemorrhage.

TWO CASES OF DEATH OF FETUS IN DELAYED SECOND STAGE OF LABOR; CHILDREN BORN WITH CORD COILED ABOUT NECK.

DR. J. O. POLAK: I had two obstetric cases last week that went along during the first stage of labor nicely, but were delayed during the second stage. The head advanced somewhat during the pains, but receded in the intervals. Both cases a half hour before the application of the instru-

ments had a distinct and audible fetal heart above the pubis, distinctly countable and not over 150. Both cases were delivered still born. In one case there was a short cord once around the neck, and in the second case a long cord twice around the neck. These children died in the 25-minute passage of the head from the cervix out of the vulva, both were average size, not over $7\frac{1}{2}$ lbs.

Death due to cord around the neck is something I do not know how to prevent, and I do not know of any positive way of diagnosing. I mention it here in order to get some light.

Discussion.

DR. F. J. SHOOP: I assisted a doctor in a forceps case some weeks ago. A child was delivered with three coils around the neck, and lived. It was a long cord. The mere fact of the cord being wound around the neck will not alone account for the death of the child. I know of no means of determining the length of the cord, after the head is engaged, and believe we will merely be obliged to wait until head emerges at vulva to release coils of cord when such cases occur, usually if that is done promptly before attempt to extract shoulder there is no danger to child.

DR. F. BALDWIN: I never supposed the cord around the neck to be a serious complication. I have had a good many of them and do not know of any I have lost. I remember one case I had where the cord was so short the placenta followed directly after the child. The child lived.

DR. MADDREN: Do you not think the cause of death might have been due to other causes than the cord—any convulsive action of the child which you noticed?

DR. POLAK: These two cases were straight, simple, easy, low cases and with good healthy children. The only thing was that each of them was delivered in the second stage, and instead of the head advancing and maintaining its advance in the intervals between the pains, it would recede. In both cases the possibility of short cord was suggested on account of the recession, and in one case we got the dribbling of urine between the pains. I do not know what value that circumstance has, but it has been called attention to as one of the diagnostic points of short cord. The only thing I can criticize myself in is the care I took to save the pelvic structures, and if I had ripped things apart I might have saved both babies. It is an interesting question and one we meet all the time, and one I do not know how to deal with outside of destroying everything in front of you.

DR. R. H. POMEROY: I have had very little satisfaction in diagnosing the cord by a finger along the occiput, and yet theoretically it seems within the range of possibility. If the head is well flexed it ought to be possible thus to palpate the cord. I know in one case where I lost the child from cord around the neck, I made several efforts to find a cord there, but I certainly did not make the diagnosis, until the head was out of the vulva.

The distance the finger has to traverse in reaching the cord on the neck is certainly within the range of the ordinary finger, but there is a good deal of compression against the symphysis, which interferes with passing the finger high up. In some cases I think it can be diagnosed before the head is on the pelvic floor.

DR. J. C. MACVITT: Dr. Polak's solution of the difficulty is the only possible one I can see. He objects to the destruction of the soft parts, but I think he would have been justified, when he had a suspicion that the cord was about the neck and he was able to verify his diagnosis, if he had made a clean cut of the perineum. This I believe to be the only possible way of relieving these conditions.

REPORT OF CASE: PUERPERAL TOXEMIA.

DR. J. O. POLAK: Patient 28 years of age. Previous history: Health always poor. Smallpox in childhood which left her with an endocarditis.

During her life she had had constant headaches, which we found to be due to a chronic nephritis. This girl with this history, was married on Christmas Day, became pregnant two days afterward. After she had been pregnant about 4½ months, she came to me on May 3rd with marked dyspnea, headache, nausea, some swelling of the feet, intermittent pulse and with the lesions spoken of. I told her she was doing a sort of risky thing to get pregnant under such circumstances. I sent the patient home, had her go to bed, put her on Basham's Mixture and a cardiac tonic, with absolute rest in bed. The dyspnea did not improve under two weeks treatment and her symptoms progressed.

On May 20th I sent her into the hospital with the idea of inducing labor, which was done on the 23rd of May, at which time the cervix was dilated and a Voorhees bag introduced into the cervix and the vagina packed with gauze. The pains came on about eight hours after the introduction of the Voorhees bag and were very severe. She

went along about six hours with good, strong labor pains, until the heart began to show considerable signs of weakness, pulse ran up considerably, and I considered it was the best thing to deliver her, which we did without difficulty, extracting a five months fetus. The placenta came away promptly, but because of the amount of shock we immediately tamponed the uterus, so that she would not lose any more blood, and gave her a hypodermic injection of 30 minims of Ergotole.

The day of operation she was passing 24 oz. of urine of specific gravity 1010, with a very small amount of urea elimination. Sunday night her temperature went to 104°, and the urine diminished next day to 5 oz. She was then given a Kemp irrigation and the bladder was catheterized, and 14 oz. of urine was found in the bladder of low specific gravity. The Kemp irrigations were continued from time to time. The kidneys were cupped, mustard plasters and poultices applied yet the temperature kept between 103° and 104°, although the pulse kept constantly below 100 until just before she died. She had no convulsions.

The uterus was examined very carefully as to infection. It was practically empty, well contracted, and the parametrium was free from any inflammation. There was no evidence of distention and no evidence of sepsis. This case was injected first by the submammary method, and later by direct infusion of normal salt solution. We got the amount of urine up to 40 oz., with a specific gravity of 1018; urea 9 gr. to the oz.

The microscopic examination of the urine showed granular casts and epithelial with white and red blood cells.

There is a history of tuberculosis in the family. There were no eye symptoms at any time that suggested any cerebral inflammation, and I put it down as a case of uremia.

Whether the amount of traumatism caused by the operation, or the ether and oxygen gas given to her, had caused the disturbance on top of an already disturbed kidney, is a question in my mind.

DR. FRANK BALDWIN: I have gotten the best results of late in nephritis by using the tincture of aconite in doses which I would have considered dangerous a few years ago. It increases not only the output of urine but in a much more marked degree the percentage of urea. I have two or three patients who are at the present time taking five drops of the tincture of aconite three times a day and are attending to their regular duties.

BROOKLYN MEDICAL SOCIETY.

The Eighty-fourth Regular Monthly Meeting of the Brooklyn Medical Society was held June 19th, 1903, the President, DR. A. T. BRISTOW, in the chair.

Minutes of the previous meeting read and adopted.

DR. LAWRENCE CARDONNA admitted to membership.

CLINICAL SECTION.

Dr. W. H. Rankin, Chairman.

DR. JOHN H. DROGE exhibited a patient with a specific perforation of the soft palate. He also showed several specimens of gall-stones recently removed.

DR. F. J. KIRK exhibited a patient suffering from Charcot's disease of the left knee. Patient gave history of specific infection two years ago. Six years ago there were possible evidences of tabes. Four years ago right great toe was amputated for necrosis. Subsequently, he developed Charcot's knee.

DR. W. B. BRINSMADE exhibited a patient on whom he had performed a Cæsarean section. Patient 24 years old: true conjugate was only two and three-eighths inches; was pregnant twice before this time at which the operation was performed. On the former occasions the fetus was removed by the aid of craniotomy and forceps. Advised her to let him know in case she again became pregnant. In June, 1902, two weeks before labor, he was called in and decided on operation, which was performed. At present time both mother and child are doing excellently. Saw child last week and it weighed 17 pounds.

He also reported case of Malignant Pustule (Anthrax). Patient a longshoreman: 32 years old; abrasion was caused on neck by the edge of a hide; ulcer formed; neighboring skin became infiltrated and marked edema of the neck and face developed on the right side; he had chills and temperature of 104; edema extended to the chest wall.

Operative areas of the size of a dollar were made and the actual cautery applied deeply; there were multiple scarifications made. There was immediate local and general improvement.

DR. WILLIAM F. CAMPBELL in the discussion commented on the use of the thermo-cautery in the treatment of malignant pustule; he said that

excision and the carbolic acid treatment were much inferior; he also said that constitutional treatment must also be combined. He mentioned injection of the antitoxin of *Bacillus pyocyaneus* in the treatment of these cases.

PROGRAM.

"The Treatment of Summer Diarrhea in Infants," Dr. C. LeG. Kerr.

Discussed by Dr. Jacob Fuhs, Dr. J. C. Kennedy, Dr. Brinsmade.

HUGH EDWARD ROGERS, M.D.,
Rec. Sec.

Convenient Device.—A novel dose-indicator for medicine bottles which has been recently put on the market consists of a disc of cardboard on which is printed the hours of the day in much the same manner as the dial of a timepiece, with the hours divided into quarters. In the upper part of this device there is a loop designed to be fastened around the neck of the bottle and which holds the dial suspended prominently on the side of the bottle. As one dose of medicine is disposed of the exact time of the next one is indicated by moving a clip along to the proper point.

Sterile Milk and Infant Mortality.—The summer pasteurized milk depots maintained by Nathan Straus closed on Saturday, having dispensed more pasteurized (sterilized) milk than in any previous year since the beginning of the work in 1892. Much of the success of the season's work was due to the earnest cooperation of the Health Department. At the beginning of the summer season Dr. Lederle caused cards of instruction as to the proper feeding of infants to be displayed in every tenement in the city. These cards gave the location of all the Straus milk depots, and were in the nature of an educational propaganda making for good health among the tenement dwellers. All the members of the free corps of physicians of the Health Department carried gratuitous coupons for pasteurized milk, which they distributed where needed. These depots will remain open throughout the year: At 151 Avenue C; 45 Monroe street; 241 East Fifty-ninth street, and 235 West Sixtieth street. At these depots all gratuitous coupons will be honored. The depots in the playgrounds of the public schools were a new feature of the charity this year. They were so placed at the request of the Board of Education. The comparatively low death rate prevailing in New York among infants in recent years has caused other large cities to look for the cause, with the result that the present season has also seen the establishment of pasteurized milk dispensaries in Chicago and Philadelphia, modeled after the plans of Mr. Straus in New York. In both these cities Mr. Straus gave the plant for pasteurizing. With the increase from year to year of the amount of pasteurized milk dispensed, a marked and consistent decrease in the death rate of children under five years of age has been noticeable. In 1891 the death rate for children under five years old during June, July and August was 126 per thousand. In 1897 it dropped to 91.3 per thousand. This year it was only 63.6.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed **BROOKLYN MEDICAL JOURNAL**, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, OCTOBER, 1903.

CONCERNING THE USE OF OPIATES FOR PAIN.

ONE occasionally hears it said that the present generation bears pain with less fortitude than did its ancestors. It is often a question of serious moment whether the demand of the average patient for immediate relief of pain may go unheeded.

Is there an increasing tendency on the part of the laity to an intolerance of pain? We believe that there is, and rightly so, since the knowledge of anesthesia, the means of early diagnosis and an improved technique in operative surgery, together with the consequent additional safety of early operation, have all taught the patient to believe that pain is of necessity no longer the most prominent symptom of disease.

To what extent the demand of patients for relief should be acceded to, is, however, a question to be decided by the conditions of each case.

Unless the statements of many observers, that addiction to drug habits is on the increase would go unheeded, care in the use of opiates must be employed.

Pain is oftentimes so valuable a diagnostic symptom that the too ready use of an opiate may become a source of immediate danger to the patient.

The masking of pain by drugs has more than once allowed an abscess to dissect through protective tissue, gain access to a vital point unheeded by the patient, and without the immediate knowledge of the physician.

Pain is Nature's danger signal. Its severity

may usually be considered an index of the degree of the inflammatory action giving rise to it.

A patient is often unexpectedly amenable to a statement from the physician, that to allow the pain to be unallayed is necessary to a thorough understanding of his condition and a valuable guide to indicate the future treatment necessary.

Ordinarily, a patient may be brought to see that the right thing is not always the easiest of accomplishment by the doctor or the patient. A necessary operation is sometimes delayed or unperformed by the employment of soothing remedies, but delay or avoidance in itself may prove disastrous.

ACTIVITY OF SUMMER RELIEF AND CHARITABLE ORGANIZATIONS.

THE medical profession has, in the creation of a science of the prevention of diseases, its greatest glory. The operations of the science are nowhere more in evidence than in the organized preparation for, and execution of, plans for the summer relief of poor of Greater New York. For this object large sums are annually expended. A list of the seaside homes, floating hospitals, "fresh air" excursions, and similar charities would fill a page.

During the past summer no department of charitable work has perhaps proved of greater value than the corps of physicians appointed and maintained by the Board of Health of this city for house to house inspection of tenements.

While the good accomplished by these physicians varies to some extent with the individuality of the doctor, the work done by them in the aggregate is hard to overestimate. It has fallen to their lot to advise ignorant, but well-meaning mothers to detect the presence of latent diseases in children; to distribute relief where needed, and to accomplish a general betterment of the health of the tenement dwellers, which is, in fact, a betterment of the health of the community as a whole.

The physicians who have performed this work conscientiously and well, may not only congratulate themselves on having improved the general health and lowered the summer death-rate of the city, but they themselves have been the gainers far beyond the small salaries received, in the acquisition of knowledge of human nature and in experience, which need not be other than beneficial to themselves.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor, before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

Dr. Charles G. Molin, of 180 State Street, spent July and August traveling abroad for rest and recreation. London, Berlin, Copenhagen and Stockholm were visited by the Doctor.

Dr. Onslow A. Gordon, of 666 Greene Avenue, spent a week in camp at Rangeley Lakes, Maine, trout fishing. Dr. Walter C. Wood accompanied him. Dr. Gordon later left for Waterford, Maine, with his family, remaining there during August.

Dr. William C. Braislin, of 217 St. James Place, sailed August 22 for England, where he spent a most enjoyable six weeks.

Dr. Henry A. Fairbairn, with his family, summered at Quogue, L. I. Dr. Fairbairn has been the recipient of many honors during the year. The Society of Science, Letters, and Art of London, of which he has been a life fellow for several years, presented him with a handsome medal in recognition of the excellence of his contributions to general literature, and his services rendered the science of medicine during his Presidency of the Kings County Medical Society. He was also elected a member of the Council of the Long Island College Hospital and Secretary of that body. The Brooklyn and Bushwick Central Hospital recently elected him attending physician. He was also made Consultant to the Long Island State Hospital, and Chairman of the Executive Committee of the New York State Medical Society.

The auxiliary of the German Hospital Association recently elected new officers and made arrangements for a dramatic performance to be given in aid of the institution early this fall.

Mr. Balfour, Premier of England, made a recent appeal for the Cancer Research Fund. Till then only 213 people in the British Isles had responded, and about one-half of the \$500,000 has been subscribed since this appeal. Mr. W. W. Astor gave \$100,000.

American Gynecology, edited by Dr. Charles Jewett, has transferred its publication office to Baltimore. This journal began the September issue under new management and with substantial improvements in typography and in its general appearance.

It is said that Mr. Edison, of X-ray fame, is a chronic sufferer from the mysterious and baneful influence of the rays. Two physicians in the radiograph department of the London Hospital have also been quite seriously "burned" from direct application of the rays. Mr. Wilson, one of the physicians, so affected, has not been able to use his hands for eighteen months, and they show little sign of improvement. There is, however, another side to the story. One of the physicians in Guy's Hospital states that 1,200 patients are annually treated there by X-rays, and that he has not as yet heard of a single case where injury resulted from the treatment. Only recently the editor of this column was told by a patient who had had some X-ray work done, that the physician in charge stoutly affirmed that it was impossible to produce a burn by the use of the rays. The experience of physicians here in Brooklyn working in X-rays would be interesting. The editor would gladly publish any facts or statistics regarding the liability to injury from the use of X-rays.

A man was arrested in Paris for smoking in an omnibus. His defence was that he considered he had the right to smoke for hygienic purposes, and in order to kill the microbes which existed in such formidable numbers in all omnibuses. It is somewhat astonishing to relate that he was acquitted.

Owing to the non-publication of *Medical News* in the September issue the recent illness of Dr. Russell S. Fowler was not mentioned in this journal. Dr. Fowler has now fully recovered from his appendectomy and has resumed his practice. The JOURNAL extends its felicitations.

The many friends of Dr. Harry De Haven Cameron were shocked to learn of his death from pulmonary tuberculosis. He died in Pony, Montana, where he had gone in search of health. Dr. Cameron was thirty-seven years of age and a native of Brooklyn. He was graduated from the College of the City of New York in 1886, and from P. & S. in 1889, afterwards serving as interne in Seney Hospital. Dr. Cameron was one of the organizers and charter members of Troop

C., holding the rank of Assistant Surgeon, and then Surgeon.

Owing to the prevalence of labor troubles, work on the new Long Island College Hospital has been deferred until next spring.

Richard Guenther, United States Consul General at Frankfort, under date of July 7, sends the following report on food adulteration in Europe to the Department of State:

An article on the adulteration of food products is going the rounds of the German press. It is stated, for instance, that an ordinary liver patty is made into fine "Strassburger" paté de foie gras by means of borax or salicylic acid and of finely chopped and cleverly distributed pieces of black silk, representing truffles.

Cosmos, a German paper, guarantees the fact that under the label of canned lobsters the soft parts of the cuttlefish and crabs are sold.

In Paris snails are of late very popular, and the adulterators mix them with lungs of cattle and horses. Even entirely artificial snails are manufactured. The shells, recoated with fat and slime, are filled with lung and then sold as "Burgundy" snails.

Lovers of fresh rooster combs are imposed upon by a substitute cut out of hogs' intestines. Chopped artificial truffles are made of black rubber, silk, or softened leather, and even whole truffles are made out of roasted potatoes, which are given a peculiar flavor by adding ether. They are said to sell well.

Fish spoiled in spite of ice and borax is treated with salts of zinc, aluminum, and other metals. Rubbing the fish with vaseline to give it a fresh look, and covering the gills with fresh blood or eosin—a coal-tar color—is resorted to. The latter is also used to intensify the red color of inferior crabs.

Imparting a greenish color to oysters is another adulteration. An oyster requires about one month in the beds to acquire the greenish color. As this is too long a time, the dealers help them along with an artificial color.

The chemists in the Paris municipal laboratories have shown that tomato jelly is adulterated with turnips, and powdered pepper contains a large mixture of powdered hardtack.

Dr. James P. Warbasse won the "Governor's Cup," for highest score in the recent New York State rifle match at Creedmoor. Dr. Warbasse is

to be especially congratulated on his win in view of the many contestants who appeared to compete for the same trophy. His score was 93 out of a possible 100.

Dr. James M. Cleveland, of 252 Rodney Street, has recently returned from a trip through California and the Yellowstone.

Dr. Schapps, formerly of Brooklyn, has removed from Pony, Montana, to Butte.

Dr. J. H. Sterling announces his removal to 45 Hanson Place.

Dr. Warbasse, of the 13th Regiment; Dr. McCumber, of the 14th; Dr. De Forest, of the 13th, and Dr. Napier, of the 23rd, all were members of their respective regimental teams, which contested at Creedmoor in the recent State matches.

The State Commission in Lunacy has appointed Dr. William L. Russell of the Willard State Hospital, as medical inspector of institutions for the insane. This position was created by the last Legislature. The salary is \$3,500, with necessary travelling expenses.

BOOK REVIEW.

THE CARE OF THE BABY. A Manual for Mothers and Nurses, Containing Practical Directions for the Management of Infancy and Childhood in Health and Disease. By J. P. Crozer Griffith, M.D. Phil., N. Y. & Lond., W. B. Saunders & Co., 1903. 436 pp., 4 pl. 8vo. Price: Cloth, \$1.50.

This manual, as well as its author, is well known and needs no introduction. It is one of the best guides for the young mother or nurse. Indeed, the average physician can read it with much profit. It is very readable, giving sound advice, scientifically correct, and covers about everything the mother should know on the subject, and much she cannot use. However, its popularity is evidenced by the fact that three editions have been called for in a few years. It is attractive in style and make-up, and well deserves its popularity.

E. H. BARTLEY.

GENERAL NOTES.

Cholera in Syria.—Cholera is reported to be raging fiercely at Birejik, Syria. Birejik is a town of ten thousand inhabitants on the left bank of the Euphrates, at the head of navigation.

Trichinosis in Germany.—Last week we noted the occurrence of two hundred cases of trichinosis at Homburg. Forty cases are now reported at Neustadt, near Coburg. Some of them have proven of a severe and dangerous type.

Appointment of Dr. Hutchings.—The State Commission in Lunacy has appointed Dr. Richard H. Hutchings medical superintendent of the St. Lawrence State Hospital at Ogdensburg, N. Y., in succession to Dr. William Mabon, who recently accepted the post of general superintendent of the New York City hospitals.

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, NOVEMBER, 1903.

No. 11

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

By A. T. BRISTOW, M.D., President of the Society of the State of New York.

Presented at the dinner following the meeting of the Associated Physicians of Long Island, at Garden City, October 17, 1903.

Mr. President and Members of the Associated Physicians of Long Island:

I respond to this toast for that ancient Society whose beginnings date backward to the early days of our commonwealth, but not alone for that Society, within whose walls dwelt peace, whose members now wait in silence for the great awakening. I respond in the name of the Society of 1882, rent in twain by differences then unreconcilable, but not alone in the name of that sorrowful assembly, in which old friends parted, nor remembering the sad years which have now become a part of the past. I respond in the name of the Society of 1903, with differences in process of adjustment, though still unadjusted, above whose horizon gleam the dawns of an unclouded sun, but not alone in that name. I respond to this toast in the name of the Medical Society of the State of New York of the year 1904, within whose halls I see reassembling a profession at last united after a quarter of a century of strife, a Society dedicated to peace, to friendship, to science, to the public service. *Vivat et floreat.*

Count it not loss that a quarrel of twenty odd years has taken two years to compose. We have wanted peace, longed for peace, prayed for peace these many years, but no peace can be permanent that is forced. Peace by compulsion means strife in the end. Peace must be the spontaneous wish of all hearts and until this was a possibility it was not in the power of conference committees, nor anxious officials, nor members to bring about that peace which must reign in all hearts and which, thank God, to-night we celebrate. At last, after long years, the black clouds of misunderstanding are breaking away; the stormy winds of dissension have blown themselves to a calm and as we look forth upon the waters we behold the dove of peace winging her way hitherward, bearing the olive branch these many centuries, the symbol of peace.

Before us lies a period of reconstruction, not, I hope, long. Some adjustments and readjustments will no doubt be necessary. If, however, we make up our minds to accommodate ourselves to changed and changing relations, if we think the best thing of each other, rather than the worst, the period of reconstruction will be short. Medical feuds arise from two causes: first, the asperities produced by the fierce competition of our modern life; second, from misunderstandings and uncharitable judgments. The first condition we cannot eliminate, the last we can and should.

When we meet in January, as a united profession, let us lay aside all past sorrow and uncharitableness and shake hands all around. This is a peace with honor, and involves sacrifice neither of principle nor dignity for either society and it is permanent.

THE TWENTIETH CENTURY PRACTICE OF MEDICINE.

BY JOHN R. STIVERS, M.D.,

Visiting Physician to the Kings County Hospital; Instructor in Physical Diagnosis at the Long Island College Hospital.

Read at the annual scientific meeting of the alumni Association of the Long Island College Hospital, May 16, 1903.

Two thousand years ago the leading commercial and educational centers of the world had within their borders many men of distinguished ability. Their statesmen, orators and generals have become renowned in history. Not so with their physicians. They knew little of the real science of medicine. For the most part they belonged to the class known as magicians and combined the mysteries of the occult craft along with the healing art. Through centuries of time professional knowledge and skill have developed until now in the beginning of this twentieth century the world is to be congratulated at the high state of advancement which medical science has attained. For this we are indebted to the untiring efforts of a large army of medical men, for, with the Hippocratic oath as an inspiration and the saving of human life as an incentive to greater efforts, physicians of the past and present have accomplished results of which we may well be proud.

Of all those who labor, perhaps none have harder work nor more trying hours of toil than the busy physician. But in spite of the laborious nature of our work, ambitious students of medicine are at all times seeking to discover facts which shall contribute to the general excellence of medical science.

This standard of excellence is not the result of mere accident but has been evolved by centuries of thoughtful endeavor. Physicians as a rule are of studious habits but of necessity they have little time to spend in their laboratories in original work and research, however, it can be said to the great credit of our profession that any medical or scientific fact that any medical man ever has discovered has been given to the world generously and without restriction that the world might profit by it.

Let us consider for a moment some of the causes which have been instrumental in bringing about improved conditions. Medical students of the present day have greater opportunities for acquiring a preliminary education, thereby laying the foundation for a medical education, than the medical student of fifty years ago. Many of the physicians of the older generations had to be content with acquiring such knowledge as they could in the district school, perhaps supplementing this with a course or two in an academy in some near-by town. Their medical education was begun and finished under the tutorship of a country physician, or if they were fortunate enough to go to a medical school, their instruction consisted in one or two courses of didactic lectures delivered during the winter months. For the past fifty years there has been a progressive change for the better until now the requirements are such that it is a matter of some difficulty to get into a medical school, and it is much more difficult to get through. The medical school of to-day demands a good, sound elementary education before it will admit a student to its doors. It can make this demand without fear of being charged with discrimination or without causing hardship to any, for with the improved system of public schools throughout the country a good education may be obtained by any ambitious seeker after knowledge no matter to what station in life he may belong.

The standard of the preliminary education having been raised to a higher plane the medical instruction is far more comprehensive and of a different character from that given in the medical schools only a few years ago. In many of the best colleges, didactic lectures are being almost entirely done away with, the more practical meth-

od of teaching by clinical lectures, actual bedside instruction and quizzes having been found to be more efficient from every standpoint. Laboratory instruction is an important part in the college course, students being taught histology, pathology, bacteriology, the chemical and microscopical examination of the contents of the stomach and bowel, the examination of the fluids of the body, both secretions and excretions, including the pathology of the blood, also the use of the X-ray for purposes of diagnosis and the application of electricity for the cure of disease.

But after all the finished education which the colleges bestow upon their graduates is in reality only preparatory for the more serious work in which we are to engage. We can all remember the satisfaction we felt on the day we received our medical diplomas and how competent and well prepared we were in our own estimation to treat the various diseases as we hoped to find them. After a few months in actual practice, we began to realize how little we really knew. We were lacking in the skill required to apply our theoretical knowledge to diagnose disease, nor could we intelligently prescribe drugs for the treatment of cases. In every way our technique was at fault.

The best educator is experience, and that experience is considered most valuable which is obtained under competent supervision in some hospital. The late Dr. John A. Arnold, who was Superintendent of the Kings County Hospital, at which institution I had the honor to serve as an interne, frequently used to say to us that a year's service in a good hospital was worth \$10,000 to any young doctor who expected to practice medicine. Dr. Arnold, who was known personally to many of you, was a physician of the old school, and a broad-minded man and was not given to making extravagant statements. We did feel, however, during those days, that his enthusiasm prompted him to overestimate the value of the experience to be obtained. But after a few years spent in the private practice of medicine those who have had the benefit of a hospital course thoroughly endorse his statement and the opinion prevails that the value of hospital training cannot be estimated in dollars and cents. It is a matter of regret, however, that many young physicians during their stay in the hospital fail to appreciate the opportunities there offered them, and leave the institution but little wiser than when they enter. The modern hospital is an institution of learning in itself, and fortunate indeed should the young physician consider himself who receives an

appointment on its staff. It is here that he has opportunities to put into practice the principles that he has had drilled into him in the class-room during his four years in college. He is forced to cultivate habits of careful observation. His service on the ambulance teaches him self confidence and impresses upon him the necessity of promptness in diagnosis and accuracy in treatment. In writing the history of a patient on his first admission to the hospital the junior physician or junior surgeon upon whom this duty usually devolves, forms systematic habits which are lasting in their influence and enable him to arrive at logical conclusions. A complete examination of the patient should include the family history, the previous personal history, the history of the present illness, a thorough examination of the entire body by inspection, palpation, percussion and auscultation, and to make an exact diagnosis, the urine, sputum and blood should be examined microscopically. All this the interne must be competent to do. In the hospital ward the interne treats the patients under the direction of the visiting physician or surgeon having the advantage of the knowledge and judgment of those who are or should be experts in their particular lines.

In the practice of our profession to-day, preventive medicine is claiming a good share of attention. Preventive medicine or prophylaxis against disease presupposes a knowledge of the causation of disease, or etiology. Etiology is the basis upon which preventive medicine depends for its success. It embraces a study of morbid agents, the manner of their diffusion and the different ways by which they invade and modify the living organism and also a study of those modes of life that are prejudicial to the integrity of the body. If we have an exact knowledge of the origin of a disease we may devise measures for its prevention. I believe it is even more important that we have a thorough understanding of the nature of immunity and prevention, than that we try to invent or discover new serums for the cure of disease. The records of the city of Havana since 1901 may be pointed to as convincing evidence of the effect of prevention. In that city yellow fever had been epidemic for a long period of years, causing annually many deaths, until it became known in 1901 that the disease was propagated by mosquitoes. Since that discovery a successful war has been waged against that disease-bearing insect with the result that yellow fever has been almost completely stamped out.

Vaccination offers another strong proof of the value of the principle of preventive medicine. Ed-

ward Jenner, whose name is held in high veneration among the lay people as well as among the profession, bequeathed to mankind a priceless gift in his discovery of the vaccine virus. We know the ravages which small-pox formerly made and we know that now there is no real fear of an epidemic because in civilized communities the human race is reasonably safe against such an outbreak on account of the almost universal practice of vaccination. The words of praise which Thomas Jefferson bestowed upon Edward Jenner stand as an enduring monument to that great benefactor of the human race. He said, "You have erased from the calendar of human afflictions one of its greatest evils. Future generations will know by history alone that the loathsome small-pox has existed, and by you has been extirpated." It is not necessary to multiply illustrations in order to show that many of the severe diseases may be prevented. As in the cases of yellow fever and small-pox, so also are diphtheria, typhoid fever and tuberculosis being diminished in frequency by increased knowledge and a more rigid enforcement of the laws of prevention. We have not merely the statement of facts, that these and other diseases are decreasing, but we have clinical data to prove the truth of those statements.

In the year 1882 Prof. Koch, of Berlin, immortalized himself by his discovery that the disease known as consumption was caused by a specific germ or parasite, the tubercle bacillus. His discovery showed that the disease made its appearance in almost every organ of the body, and that no matter where it was located it was always due to the same cause. Prior to that discovery one-sixth of all deaths had been caused by tuberculosis in some form. Acting on the information imparted by Prof. Koch, practitioners not having any positive remedy for the cure of the disease, have been endeavoring to protect their patients against the attacks of the bacilli, and that they have in a measure succeeded is proven by the fact that since 1882 the mortality from this disease has been steadily growing less, and in a ratio never before equaled.

It may be of interest to state that in the city of New York in 1880 the death-rate from pulmonary tuberculosis alone was 4.05 per 1,000, or nearly 15 per cent. of the entire death-rate. In 1900 the death-rate from the same disease in the boroughs of Manhattan and The Bronx, which comprise the former city of New York, had been reduced to 2.5 per 1,000, or 12 per cent. of the whole death-rate.

In the city of Brooklyn in 1880 the death-rate from the same disease was 3.05 per 1,000, or more than 13 per cent. of the whole death-rate. In 1900 the death-rate in the same territory from the same cause was 2.05 per 1,000, or about 10 per cent. of the entire death-rate, showing a reduction from 13 per cent. to 10 per cent.

In the city of Philadelphia the reduction of the death-rate from tuberculosis is still larger. In that city in 1880 pulmonary tuberculosis caused 3.2 deaths per 1,000 population, or 15 per cent. of all deaths, while in 1900 it had been reduced from 15 to 10 per cent.

While these figures should be highly encouraging to the medical profession they may be somewhat misleading for the reason that two decades ago the health boards of the cities mentioned were not so stringent in having all cases of tuberculosis reported and many cases no doubt escaped notice, so that the published records do not express the whole truth. The figures would be still more encouraging had the cases been as fully reported in 1880 as in 1900.

It would seem from the experiments and discoveries of Koch, Pasteur, Eberth, Behring, Klebs-Loeffler and others that the germ theory of disease is established beyond doubt and that to prevent disease we must turn our attention toward the destruction of those pathogenic organisms which produce them. Nature herself offers us the greatest assistance in this direction. We are aware that microbes abound in the body, being swallowed with our food and drink, inhaled with the air we breathe and gaining entrance through abrasions in the mucous membrane. The number of microbes to which the body is subjected varies with the environment. Under ordinary conditions the natural defences of the body afford sufficient protection against these bacteria, but they cannot withstand the attacks if the microbes be greatly increased in virulence or in number. Among the natural defences may be mentioned the epithelium, which limits or prevents the entrance of bacteria, certain tissue cells which counteract or neutralize the toxic effect of the microbes, phagocytes which destroy them, and certain fluids of the body which contain principles unfavorable to their growth.

When the micro-organisms enter the body they are carried by the lymphatics to the lymphatic glands. Here they may be destroyed by the cells in the glands or they may pass through the glands into the blood. In the blood the organisms may be destroyed by the plasma, by the phagocytic action of the leucocytes or by the bacteriolytic ac-

tion of the red and white blood cells. Should they successfully resist all these agents they will come in contact with certain bactericidal cells in various organs of the body, particularly in the liver. If bacteria be introduced into the portal vein many of the pathogenic organisms will be killed by the hepatic cells, so that after circulating through the liver the blood will contain no bacteria or the bacteria will be much reduced in disease-producing power. The streptococcus and the anthrax bacillus are both destroyed by the germicidal action of the hepatic cells. It is believed that a certain number of bacteria are taken up by leucocytes from the alimentary canal and carried into the lymph glands or to the portal circulation. Here they are destroyed by the leucocytes or by the endothelial cells. But should any of these bacteria enter the blood through the thoracic duct or the liver they may then be destroyed by the kidneys and perhaps other organs. There may exist, therefore, a condition of microbism or latent infection and if there be an excess of bacteria in the intestines, this latent infection may be increased into a condition of inflammation involving the lymph glands, liver and kidneys. In this way it is believed certain cases of cirrhosis of the liver may be accounted for. From the foregoing statements we may conclude that the practice of preventive medicine is simply carrying out in detail the principles which we learn from a minute study of the workings of the organs of the body.

Modern methods of diagnosis and practice could never have reached their present status but for the aid of the microscope, the physician's most powerful ally and the highest tribunal to which many doubtful cases can be referred. The microscope is to the diagnostician what the compass is to the navigator. By its aid we may determine facts in regard to obscure cases, which will lead to a positive diagnosis, without which facts the solution would always be in doubt. In fact clinical microscopy has progressed to such importance that no physician can now practice medicine in a manner to be tolerated in a civilized community without constant recourse to it.

Among all the advances in modern medicine which have come from the application of laboratory methods to the diagnosis, prognosis and treatment of disease, none have gained better headway than the careful and systematic examination of the blood. So much work has been done on this subject that medical literature mentions a new sub-division in medicine known as hematology. The functions of the blood repre-

sent the functions of its component parts, thus it serves to carry oxygen from the lungs to the tissues, and to carry carbon dioxide and other products of metabolism to the lungs and excretory organs; to carry nourishment to the tissues; to act as a medium for the transmission of the internal secretion of various glands; to aid in equalizing the temperature of the body; to supply the agents to destroy or remove invading bacteria and to furnish substances out of which pigments and many of the various secretions of the body are formed.

The functions of the blood, then, being varied in character, the study of its constituents serves as an index to the condition of many of the organs of the body and enlightens us as to the needs for treatment.

The study of the prevention and cure of disease by the injection of serums has been elaborated, until now serum-therapy has an established value among our therapeutic agents. Diphtheria has been robbed of its terrors and tetanus, hydrophobia, small-pox and typhoid fever are successfully treated by this measure.

Finally, with the advanced requirements of education, the improved opportunities for acquiring hospital training and experience, physicians are enabled to and do render to their patients better service than ever before. It is to be regretted, however, that their remuneration is not commensurate with the skill employed. It is to be hoped that this will right itself in the near future.

A factor which is worthy of mention as being among the important advances of recent years in the practice of medicine is the employment of trained nurses. The efforts of the physician are supplemented in a practical way by the skill of the trained nurse, who can often relieve the physician of much anxiety concerning the condition of his patient between visits. To my mind too much credit cannot be given to that most noble and self-sacrificing of all professions, the profession of nursing.

Improved pharmaceuticals make it possible for the physician to carry out the principles of the therapist and cure quickly, safely and pleasantly. Instead of the nauseating mixtures and crude drugs formerly used, the more elegant preparations are now at our disposal and meet with much favor both from the physician and patient.

While physicians may at times be chagrined at the apparent popular support given to quacks and irregular practitioners of medicine, let us remember that such fads as osteopathy and Christian Science are here to-day but gone to-morrow,

while the science of medicine, with Hippocrates as its founder, will live on with increasing glory through future generations.

DR. GLENTWORTH R. BUTLER: The finished and interesting survey of modern medical progress which Dr. Stivers has given belongs to a class of papers to which it is always pleasurable to listen. It is distinctly more agreeable to hear praises of one's profession than to twist under criticism, even though deserved. In this case, however, the writer of the paper has not overestimated in the least the tremendous advances which have been made within a few decades, all of which redound to the glory and honor of medicine. The achievements of surgery are indeed wonderful; no less so are those of therapeutics and prophylaxis in their broadest meaning. Antitoxin in diphtheria, thyroid extract in myxedema, quinine in malaria, and mercury in syphilis are indeed specifics. The practical stamping out of small-pox, the making habitable of waste places by protection from the malaria and yellow-fever-bearing mosquitoes, the restriction of epidemics of cholera, yellow fever and bubonic plague, and the reduction of the mortality from tuberculosis bear eloquent testimony to the accomplishments of preventive medicine. In keeping with all this is the great improvement in medical education. The requirements for entrance have changed greatly for the better, and the trend of events, as indicated and urged by Dr. Stivers, is toward more clinical instruction, with less time wasted in the old didactic lecture. The latter is by no means to be displaced; it has in modified shape an important function to perform. But I believe that after a thorough text-book drill in the theory much more time will be devoted to the actual study of the concrete case.

The three crowning achievements of modern medicine, which have saved an incalculable amount of human suffering and disaster are anesthesia, asepsis and, with all that it includes, sanitation.

DR. H. A. FAIRBAIRN: The distinguishing feature of the practice of medicine of this century is that it rests upon practical research and investigation instead of mere speculation which characterized procedure of former days.

Perfect methods, the steady advance of the allied sciences and the more thorough training of the workers have led up to this result. It is acknowledged that the well-equipped medical man of the day has gone through a more severe course of mental training than the representative of either of the other two professions. That is an

account very different from the satirical shafts which Dickens continually levelled at our ranks.

It is not strange under the circumstances, that a great change has taken place in the methods of instruction. The professor to-day faces benches filled with men well trained mentally, thanks to the work of the secondary schools and colleges. He has a very different task from that which his predecessors were busied with. For instance, with this material it is entirely possible for him, in some of the branches, to draw out of the pupil by proper reasoning the natural history of many diseases. Given an organ, the anatomy and physiologic function and, its chemistry being known, it is quite possible to correctly predict on such data the results of its invasion by a morbid agent the nature of which is known. The didactic lecture of former days, the recounting of dry detail, is being replaced in modern times by the Socratic method of teaching. In the midst of these rapid and radical changes it seems astonishing that the old nomenclature of disease remains with us. It cannot remain long. The orator of the evening has drawn a pleasing picture which cannot be exhibited too often. He stands in fine contrast with the carping critic and calamity crier who appears on the platform of the various professions with that perennial cry about over-crowded ranks, who would apparently close the doors of learning with such a slam that they would be in danger of swinging around with such force as to jar his own beloved frame.

You have his imitators in those who bemoan the too rapid increase of the human race, who chill the young men in all walks with their cry of "not enough to go around." In spite of them the race increases and increases rapidly and prospers and grows more mighty and enjoys life. It disobeys the laws of nature and will continue to do so, or, in other words, suffers the consequence—sickness. It requires the aid of the medical profession to relieve this and it prefers the practical man who can produce results. He will be in good demand always and modern medicine is coming to his aid more and more daily.

Theisen (*The Laryngoscope*, August, 1903) does not believe there is much doubt that lipomata are *always* congenital. The only way the occurrence of these tumors can be explained, is by the embryonal theory. They undoubtedly owe their origin to some congenital aberration, *i.e.*, misplaced fat cells. As the tonsil contains no fat, some misplaced fat cells must be present in embryonic life, and later owing perhaps to lowered powers of resistance of the neighboring cells, the fat cells show a tendency to predominate and form a growth,

CONCERNING FISTULA IN ANO.

BY WALTER C. WOOD, M.D.

Read before the Brooklyn Surgical Society, June 4, 1903.

IN these days when surgical papers are, in great part, concerned with the major problems in Abdominal Surgery, one is inclined to apologize for calling your attention to this minor subject. Yet my observation forces me to believe that many surgical errors are committed and many professional reputations injured by failure to cure this simple affection. Kelsey says that 50 per cent. of all operations for fistula, even in hospitals, are failures either from fault in the operation itself or from lack of care in the after treatment. It is a fact that most of the patients on whom I have operated for fistula in ano have been previously subjected to operation, one or more times, for the same condition. These patients seem to be especially grateful when cured and especially bitter when not relieved.

Since the time when Louis XIV, the French king, rewarded Monsieur Felix and his numerous assistants with over seventy-three thousand dollars and many honors besides, for the cure of his fistula, the charlatans and quacks have reaped rich financial harvests from these sufferers, many of whom have been previously under the care of our profession. Some fistulæ any one can cure. The common director plunged boldly in, the common bistoury pulled boldly through a mass of tissue, the chasm plugged with gauze; such methods will cure some fistulæ. Others require a nice adaptation of means that tax the judgment of the surgeon, his patience, and his skill. The simple type is illustrated by the fact that a surgeon, prominent in New York fifteen years ago, cured his own fistula with a director, a bistoury and a looking glass; the complex type by a case in a motorman who, required to work for the daily bread of his family notwithstanding a fistula presenting seven external openings, was completely and permanently cured by three months of careful office treatment after four hospital operations had failed.

There are certain sources of error that I should like to bring to your attention:

One common error is a failure to appreciate the exact pathology of the individual case.

With the exception of the very few cases that are secondary to strictures and malignant disease, a fistula is invariably preceded by an abscess formation. Even those very rare cases

when the primary factor is an injury, an abscess is the second step in the process. Now, it is a mistake to assume that all, or even the majority of the abscesses that result in fistula are located in the ischio-rectal fossa. The origin of the abscess is important as determining the location of the fistula, and especially its internal opening. Rectal abscesses are well divided according to their location, as follows: The superficial ones, three in number; tegumentary, sub-tegumentary and ischio-rectal, and the deep one above the levator ani.

The tegumentary abscesses are direct infection of hair follicles due to irritation or uncleanness. These do not result in fistula and need not concern us here.

The sub-tegumentary inflammations are, on the contrary, of extreme importance, for circumscribed inflammations of the sub-cutaneous and submucous tissues are common and result in a special type of fistula. They are essentially lymphatic infections with a small primary source within the anal canal. Some develop slowly and insidiously, ordinarily applying for treatment only after the discharge of thin watery pus, while others are more acute in origin and definite in symptoms. These cases of sub-tegumentary abscess, of either type, open externally or just above the muco-cutaneous junction and not into the rectum proper. A fistula arising from the slower type is apt to pass up beneath the mucous membrane of the rectum beyond the internal opening, which is usually small. Many of these cases go uncured because this small pouch is not recognized. These cases seldom go in a straight line and are not easily followed with an ordinary probe, yet they have but few branches. When these fistulæ occur in patients with a sphincter that is not in a state of tonic contraction, their direction can be easily recognized and followed to their full extent by the finger palpating the indurated cord which denotes the course. The probes usually used are far too large. The filiform bougie made for urethral use is an excellent means for determining the internal opening, if one exists. I wish to take exception to the statement made and emphasized by the well-known rectal surgeon, Mathews, that it is of little importance to determine exactly the internal opening of these or any fistulæ. When I find the internal opening I cure these fistulæ; when I do not find it, sometimes I cure them, sometimes I fail. It is not enough to force a probe through the mucous membrane when it comes near the rectum. A sub-mucous tract, or what constitutes practically a

blind internal fistula, is left, and re-infects the old tract.

In certain tubercular patients, when anesthesia and confinement to bed are undesirable and when the sphincter is relaxed (as is usually the case in such patients), cure can be obtained by office treatment. Under cocaine, injected in the skin and into the fistula, the external opening is enlarged along the line of the fistula for about an inch. Then on other occasions, by the use of cocaine and peroxide of hydrogen, the tract can be followed up to its termination. It is well to make a back cut on the upper surface of the fistula, perhaps a quarter of an inch in depth. This permits healthy granulation to spring up. The use of chloride of zinc, 5 per cent., or tinc. of iodine twice a week, and the daily use of iodoform suppositories and internal tonics are very necessary to ensure healthy healing.

If, however, an operation is done under anesthesia, as is much more desirable, when not distinctly contra-indicated, a more certain and rapid cure can be obtained by *dissecting out* the fistulæ than by incising it. I refer now to the sub-tegumentary fistulæ alone. After locating the internal opening by palpating the course of the fistula and the use of a minute probe, a piece of silk is threaded through the fistula and a large rectal speculum inserted. The tract is then dissected out, leaving it threaded on the silk. It is done in this way: An incision is made down *to*, but not *into* the fistula, carrying it around both the internal and external openings. As the indurated mass is dissected out, from time to time, a little peroxide of hydrogen is injected into the fistula. As long as no leak occurs from the walls of the fistula, one is certain that no branch has been cut across nor the tract entered. If any leak occurs, the exact location of the defect is easily recognized and more tissue removed or the branch followed up. I do not now believe in or practice the suturing of these cases. It militates against the certainty of a cure and is unnecessary either to avoid incontinence or to hasten repair. These sub-tegumentary fistulæ will heal permanently in a month or less, without suture, when dissected out in this way.

Concerning the operative treatment of those fistulæ that arise from true ischio-rectal abscesses, I have little to add to the well-known principles.

I would like to emphasize the value of the little procedure known as Salmon's back cut. It is on the same theory that we incise the edge of a chronic ulcer to permit healthy granulations to

arise through the indurated tissue. It hastens the healing process.

While in the sub-tegumentary fistulæ I am strongly in favor of excision instead of incision, in these deeper cases it seems to me probable that the older method of incision is preferable. These fistulæ are more branched than the superficial type, and to excise all the ramifications of a complicated case requires much time and is a formidable procedure. It is only the simpler fistula of this deeper type that do better with excision than with incision. In doing the ordinary operation, unless it is very evident that the tract is straight, it is surely better to cut from above downward, making certain that the exact and entire course of the fistula is laid open, rather than by the quicker method of the older authorities.

The question of incontinence of feces after operation is one that distresses the patient and needs to be continually borne in mind by the surgeon.

If both sphincters are cut once across at right angles to their fibres, it is safe, but the exact direction of those fibres must be considered, for the anal sphincters are not circular but elliptical in shape. It is therefore necessary sometimes to make the incision from the external opening parallel to the fibres until such a point is reached that a line from it to the internal opening will cross the sphincter fibres at a right angle. When occasion demands it, there is safety in cutting the external sphincter more than once, provided the internal one does not share in the double injury.

Fistula work, perhaps more than any other class of surgery, depends for its success upon intelligent after treatment. There are many reasons why abscesses and fistulæ heal slowly or not at all. These must be appreciated if the after treatment is to be intelligently carried on. Absence of rest due to action of the sphincters to coughing and exertion; a sluggish venous circulation from portal congestion, acting as do varicose veins on the healing of leg ulcers; poor drainage from too early union of skin surface; direct entrance of gas and feces from the rectum through an opening that has not been found, or to the indirect injection by which the abscess originated, namely the lymphatic channels, and lastly, to a less extent than usually supposed, local tuberculosis—these are the causes that must be overcome if healing is to be accomplished.

Operate ever so well for the fistula and leave the after care to one who is content with superficial applications and does not appreciate the pit-

falls to be avoided, but expect a large percentage of failures. At least twice a week the bottom of the wound must be examined under a good light, any pockets be broken up with the finger and exuberant granulations cut down with iodine, chloride of zinc or other caustics. In my experience, after the first week, these cases do better with fresh air and moderate exercise than when confined to bed. Sitting, however, is detrimental and must be limited as much as possible.

Concerning the question of tuberculosis and fistula, I am more hopeful than many. This subject must be considered from two points of view, first: Simple fistulæ in tubercular patients, and second, true tubercular fistulæ. There is much old authority for the position held quite generally that, in the presence of phthisis, a fistula will not heal after operation, but will even break down to a greater extent and the patient be injured by any surgical interference. Those who do not accept this view and operate in the presence of phthisis, acknowledge that these cases are not easy to heal on account of cough which does not permit the parts to remain at rest, and on account of the lower vitality of the patients. At the Loomis Sanitarium, up to April, 1901, 595 cases of phthisis had been admitted among whom were nine cases of fistula. All of these had been treated by operation, which consisted of incision, curetting and an after dressing of 10-per-cent. ichthyol gauze. One case was too recent to be considered, the other eight had all healed promptly with general benefit to the patient. The statement follows that even the lung lesion was in every case improved and the practice of operating for fistula in the presence of phthisis is strongly recommended.

Phthisis is a less frequent accompaniment of fistula than is often supposed. Out of 139 cases of fistula at Mt. Sinai Hospital in four years, 13 cases had phthisis, or less than 10 per cent. Collected statistics of 1,632 cases of fistula show 234 patients having phthisis, or about 14 per cent.

These facts make it wise to give particular attention to the lungs in all cases of fistula, but are far from condemning a patient to an ultimate death from tuberculosis because he has a fistula.

Because a patient has both phthisis and fistula, it by no means follows that the fistula is a local tubercular lesion. The true tubercular fistula is not a common lesion and shows many points of difference from a simple one.

The openings are larger and apt to be angular rather than round, while the edges are bluish and depressed with undermined skin. The discharge

is more profuse and watery and irritates the skin. The introduction of a probe is painless and the history of the preceding abscess is insidious. The anus is patulous and the sphincter without tone. Microscopic examinations of the granulations shows the bacilli, but it is not easy to find them in the discharges. I think it also probable that the ischio-rectal abscess is far less apt to be a tubercular lesion than is the sub-tegumentary, therefore it follows that the superficial fistula is more often tubercular than is the deeper one.

In the presence of true tubercular fistula we are confronted with two questions: First, shall we advise operation? Second, if so, what kind of operation?

In answer to the first question, it seems to me that the general surgical principles hold rather than any special rule for fistula. If the patient's general condition warrants any operation of like severity I would not hesitate to operate for fistula any more than I would for hemorrhoids, for example. The negative side of the question I would reach by the same reasoning.

Concerning the type of operation I would suggest three things:

Local anesthesia is especially desirable.

Any fistula that can be excised without too formidable a procedure had best be so treated.

If incision seems best, it is wise to do it with the cautery instead of with a knife, and thus destroy the organism and avoid infection of fresh cut surfaces.

Discussion.

DR. J. P. WARBASSE thought that we should divide these fistulæ into two other classes, viz.: the chronic fistula that is surrounded by fibrous scar tissue, and the more acute fistula associated with some degree of surrounding cellulitis. These represent two very different conditions, and conditions demanding two different treatments.

In the cases associated with cellulitis, he believed we get the best results by simple incision and curetting out necrotic material and packing with gauze.

In the old cases of chronic fistulæ with a good deal of fibrous tissue, in his experience he had found that a dissecting out of this scar tissue completely and thoroughly and suturing the wound from the bottom carefully, has given most satisfactory results and has shortened the period of confinement very considerably.

It has been his practice in these cases to dilate the anal sphincter until it was thoroughly paralyzed (not a moderate dilatation but an extreme dilatation), until he was satisfied that the mus-

cular fibres were thoroughly paralyzed, and would remain so for at least twenty-four or forty-eight hours, insuring rest to the parts. Then after dissecting out the fibrous tissue a deep suture of chromic gut was applied, and the wound treated cleanly. This method has, with very rare exceptions, given a prompt primary healing.

His experience with the probe in tracing out the course of the fistulous tracts had led him to believe that there are still better methods than the probe. It is a difficult thing, even with as fine a probe as the filiform bougie to find the different ramifications of a fistula, and, as Dr. Wood has said, a larger probe fails to enter these small canals.

The speaker had found that the injection of a strong solution of methylene blue into a fistula so thoroughly maps out the whole tract that when it is incised and laid open the eye easily follows the blue pigment, and we can trace out every bit of the fistulous pocketing that exists, and in that way we may proceed and dissect out all fibrous tissue to which we are guided by the blue stain.

In the superficial fistulæ which Dr. Wood has designated as sub-tegumentary, he believed we may operate successfully under local anesthesia, and even without paralyzing the sphincter; after dissecting out the fistulous tract, close the wound from one end to the other, and expect to get prompt healing. He had used this method enough to be quite satisfied that that course will give, as a general rule, the most satisfactory results both to the surgeon and the patient.

DR. L. W. PEARSON said that there is a class of fistulæ long neglected that sometimes burrows all about in the buttocks and in the tissues adjacent to the rectum, in which he had had very excellent results in incising them and dissecting out the fibrous tissue and suturing them. In two cases the fistulæ extended up into the rectum and burrowed outside all over the buttocks. An incision was made into the rectum—that portion was kept open, but all of that part that extended about on the buttocks was sutured, the portion into the rectum left open and packed with gauze. That portion which was sutured healed very readily, and he thought that any one who will suture the parts that are open away from the rectum will not be sorry for it.

DR. W. C. WOOD had nothing to add, except one word in regard to chronicity. In a recent work on Diseases of the Rectum, by Tuttle, which is a remarkably scholarly work, he declares that the essential feature of a fistula is that it is chronic, and so classifies all other types of open-

ings into the rectum as sinuses, not as rectal fistulæ, but as sinuses complicating a septic process. Therefore, the speaker had not made reference especially in regard to the more acute conditions, which require simple drainage.

Concerning the plan of suturing, he had not had as good results along that line as he would like. He could not get as a routine measure, a fistula to heal up by suturing it. If he wanted to cure a case positively he did not suture it. He has not had the satisfactory results the two previous speakers had reported. He had tried and been disappointed.

In reference to these sub-tegumentary fistulæ, they are more common than supposed. The reason they do not heal is they are cut too deep for the trouble. He had recently had four private patients who had been operated on from one to four times each, and they were easy cases of fistula if the exact type had been recognized at the beginning. They were sub-tegumentary and never entered into the ischio-rectal fossa.

HEAD INJURIES: THEIR DIAGNOSES.*

BY ALEXANDER RAE, A.B., M.D.,

Lecturer in Surgery and Assistant Visiting Surgeon, Long Island College Hospital.

No more important class of injuries comes to the notice of the surgeon than those affecting the head. Patients suffering from some injury to either the soft tissues covering the head, the bones of the skull, the contents of the cranium, or from various combinations of these several conditions are constantly presenting themselves.

The nature of the contents of the cranial cavity, upon the integrity of which depends the welfare of the individual, renders the occurrence there of pathological conditions of most serious import. The possibility of serious damage to cranial contents, *primarily*, from the violence causing the injury, and the great danger of complications springing up *secondarily*, either of which might prove fatal, often makes it impossible to predict with certainty the final outcome of injuries to the head.

The almost certain fatal termination of any *infective process* in the cranial contents gives to all measures to prevent or limit the same, title to first consideration. Hence it is, that in all open injuries to the head, aseptic or antiseptic, measures should precede even an attempt at accurate diagnosis: for of what avail the accurate diagno-

sis, obtained under conditions which allow of, or set up fatal pathological conditions. In recent years the intelligent use of germicidal solutions at the right time has often turned the scale against fatal infection and the beneficent influence of the principles of asepsis and antisepsis becomes especially prominent in the early care of injuries to the contents of the cranial, as of the thoracic and abdominal cavities. Most serious injuries to the head, comprising loss of a considerable amount of tissue, scalp, bone and brain, have been completely recovered from, where infection did not supervene. The frequent failure of an attempt to obtain and maintain asepsis in certain head injuries, as in fractures of the base, where the intrinsic conditions are such as to render futile the endeavor to prevent the entrance of microorganisms, should not in the least diminish the effort to maintain all wounds about the head in an aseptic condition.

In the absence of active hemorrhage or evidently fatal shock, the fact of the injury being of the open variety, is of the first importance, for the reason that even slight open injuries furnish opportunity for infection which may quickly change an otherwise simple condition into one full of peril to life.

If the injury is an open one, the wound will be incised, punctured, lacerated, etc., depending on the instrument causing the same. The *character* and *extent* of the injury are determined by inspection, and the use of the sterile finger or probe *only* after the injured and adjacent area has been thoroughly protected. Here the variety and extent of the wound of the soft parts—the presence or absence of bone lesions, injury to meninges or brain substance are to be kept in mind. If the wound in the soft tissues does not gape, it is limited to the skin; if it gapes widely, the subjacent aponeurosis has been cut through; in the latter instance the periosteum may be separated, in which case bare bone will be quickly recognized; fractures with or without depression are usually readily diagnosed in open injuries. Valuable information may be gained by noting the absence of pulsation in an exposed area of uninjured dura. Normal pulsation being absent, search carefully with bent probe under the edge of the bony defect for a fragment of bone or other foreign body between dura and skull. Such material thus placed causes anemia of the dura sufficient to interfere with pulsation; contusion to the brain or a subdural hematoma at the seat of the injury are likewise sufficient to destroy pulsation. Pulsation being absent, either of these conditions may be

*Read before the Brooklyn Surgical Society, May 7, 1903.

present. In many cases, with depressed bone present, the necessity for thorough asepsis and the advantages of an anesthetic may bring it about that the examination will be part of the treatment when depressed bone will be elevated, fragments removed, rough edges smoothed and fissures carefully cleansed.

If the injury to the head be a closed one, contusions to the soft tissues, hematoma, fracture, injury to brain or meninges with perhaps cerebral or meningeal hemorrhage are possible conditions. In the local examination of closed injuries inspection generally reveals a swelling, usually a hematoma. Does the swelling bulge prominently? Is it circumscribed, tense and somewhat movable? Then it is superficial, that is, between the skin and the aponeurosis of the occipito-frontalis muscle. Is the tumor flattened, spread out, of low tension and immovable? Then it is beneath the aponeurosis, possibly partly beneath the periosteum. A sterile needle pushed into the tumor and reaching bare bone at once defines the tumor as sub-periosteal. These conditions are readily understood when the anatomical facts are recalled. The skin and the aponeurosis of the occipito-frontalis muscle are closely attached to each other; any collection of blood does not therefore easily separate these structures, but makes room for itself by bulging outward the yielding skin. On the other hand, the aponeurosis and the periosteum are joined by loose connective tissue so that they are easily separated by escaping blood; the aponeurosis, however, is strong, tense and unyielding hence the hematoma is spread out thinly beneath it.

The border of a flattened hematoma of the scalp often presents a ridge of infiltrated tissue of firmer consistency than the rest of the tumor. The examining finger passing over this dense border into the softer portion of the tumor gives the sensation accompanying a depressed fracture. Any uncertainty may be eliminated by pressing firmly on the ridge with the finger; in places, the ridge can be entirely pressed out and the smooth, bony surface felt, with its continuity unbroken. In closed injuries the pressure of a fracture may be overlooked until symptoms of cerebral irritation from fracture of the inner table appear.

The one consideration in head injuries which outweighs all others is the fact as to whether or not the brain and its membranes have been injured. In open injuries much information may be obtained from the local examination. In closed injuries the presence of certain functional disturbances often furnishes reliable evidence on this point.

Whether the injury be open or closed, the occurrence of unconsciousness on the part of the patient, after receiving the injury, indicates that either concussion of the brain or compression of the brain complicate the situation. Concussion and compression are peculiar conditions which involve the whole brain; what are designated as diffuse lesions. Of these concussion is much the more frequent, all but the slightest injuries to the head being accompanied by some degree of concussion of the brain. In concussion there occurs a shaking up of the entire substance of the organ—a rapid molecular displacement of the total brain substance. The violence causing the injury stimulates all the centers to the point of exhaustion and paralysis of all the centers for a variable length of time follows. Hyperemia of the pia and arachnoid of the brain and cord, hyperemia of the brain substance and of the upper part of the medulla are often the only pathological changes. Concussion severe enough to cause death occurs, and no lesion, gross or microscopic is found at autopsy. In some cases, however, lacerations of brain substance involving extensive or small areas, and accompanied by capillary hemorrhages and hemorrhage into the membranes have been demonstrated. These are not cases of simple concussion. Concussion has been designated cerebral shock. It would seem, however, to be more than this. In ordinary shock all the changes can be accounted for by the reflex paralysis of the vasomotor center in the medulla. Admitting that this condition exists in concussion, it does not explain the fact that in concussion, all the centers are affected, the inhibition of all being for a longer or shorter interval, complete. Many degrees of unconsciousness are met with: in the slight or minor forms the inhibition is evidenced by a stunned or dazed condition of momentary or very brief duration, which can often, from a clinical standpoint be disregarded. However brief the inhibition of cerebral function is complete and is distinctive of concussion, and must be present if a diagnosis of concussion is to be made.

The symptom of vomiting may or may not be present; when present it may occur immediately or be delayed until the return of consciousness. The slowing of the pulse-rate is an important objective, differential symptom. Severe degrees of concussion are serious conditions: the return to consciousness, the rehabilitation of the pulse-rate and restoration to normal function on the part of the cerebral centers often being delayed for hours, the slowed pulse remaining for some days. In referring to compression of the brain, attention is

directed only to the acute form, following injury to the head. Only some sudden increase of pressure causes characteristic symptoms of compression. The cubic capacity of any cranial cavity cannot be increased; it can be diminished only by some change in the contour of the bones of the skull, as seen in depressed fracture. *Any factor added* to the normal contents of the cranial cavity relatively diminishes the cubic capacity. Either of these conditions will bring about compression. The only *compensation* for diminished intracranial space is found in the transferring of an increased portion of cerebro-spinal fluid out of the cranial cavity into the sac formed by the membranes of the cord—which sac is to a certain extent distensible.

Depressed bone, of great importance, because of its local pressure effects, is less so as a causal factor in compression—a diffuse condition—than is hemorrhage from torn meninges or from a ruptured intracranial vessel. Escaping blood forms a clot which makes pressure over the area on which it rests, and a flattening or actual depression of brain substance results. The pressure is at first local, but is transmitted partly by the brain substance, partly through increased tension of the cerebro-spinal fluid to all parts of the brain, and compression of the organ results. The theory of compression is still under discussion. The accepted explanation of the condition allows of deductions, which though often proved at autopsy to be only partly correct, furnish the only working basis for diagnosis.

Is compression present? Seldom does this condition exist alone. The clinical picture usually furnishes signs of concussion, as well as of some local lesion. The primary symptoms of compression are: First, those due to irritation, and second, those belonging to the period of depression. In compression coming on quickly after injury, the period of irritation is so brief that practically the signs of depression are those which alone are exhibited. Often after head injuries the condition of unconsciousness is present. (1) The violence disturbs the relation of the brain cells to one another; the circulation is instantly altered; the supply of oxygen or other pabulum is diminished; cell nutrition is quickly modified; function is *immediately* lowered. (2) The highly organized brain cells exhibit quickly the effect of any loss of nutrition. The condition being diffuse, involving all of the brain, the interference with function is total and all the cerebral centers being inhibited, unconsciousness supervenes. If unconsciousness is quickly recovered from it was due

to concussion, a transient condition. If the unconsciousness continues the continued loss of function is due to added factors: First, the restoration of the circulation, therefore of the nutrition, is *prevented by pressure*, or, second, the *integrity* of the brain cells has been affected when their circulation and nutrition was directly altered.

The pressure may be from depressed bone, with or without a blood clot at the seat of injury: from a large clot in the substance of the brain; from numerous small hemorrhages into brain tissue, or into the meninges. Contusion and laceration of portions of brain tissue, cortex or deeper portions affect directly the integrity of brain cells. Pressure, at first local, soon becomes general, and compression causing and maintaining unconsciousness is present.

Does the unconsciousness disappear and in a few hours recur, the signs manifesting themselves gradually? Due primarily to concussion from the violence causing the injury, this recurrent form of unconsciousness is almost surely due to hemorrhage from an intracranial vessel, and is typical of hemorrhage from the middle meningeal artery. Resting in its groove on the inner surface of the temporal bone the vessel is ruptured by violence to the head, with or without injury to the cranial bones. Before the escaping blood can produce pressure effects it must dissect free the dura from the bone and by causing it to bulge, make increasing pressure, which being transmitted, soon causes compression. The process of separating dura from bone requires time, hence the interval between the receipt of the injury and the exhibition of signs of compression.

Often, on the return of consciousness, symptoms of local injury are revealed, manifested by disturbed function of spinal or cranial nerves, or of both. Usually this loss of function shows itself in some form of paralysis. Knowledge of the fact that cerebral functions are localized in circumscribed, discrete portions of the brain and acquaintance with the location of at least some of these centers, makes possible, in many cases, a correct interpretation of this loss of function.

In open injuries (the patient being conscious), when the known location of particular centers coincides with the injured area and corresponds with the loss of function exhibited, the diagnosis is easily made. In closed injuries, without local external signs, the history of violence to the skull over some limited area, together with the loss of function present, furnishes reliable testimony as to the centers involved. In any case, as far as

knowledge of localization exists, the loss of function points to the seat of injury. The disturbance of function is usually some form of paralysis, a monoplegia, a hemiplegia, or it may be manifested in loss of power in some cranial nerve, when sight, hearing, the sense of smell, etc., will be absent. Or some combination of these two classes of symptoms will point correctly to the seat of the lesion.

It should ever be borne in mind, however, that in a considerable proportion of brain injuries no local symptoms are present. Two reasons account for this fact.

Uninjured portions of brain tissue quickly take up and carry on the function of adjacent injured areas, so that no loss of power is exhibited. What is named the principle of substitution is very perfectly developed in cerebral tissue. Then, too, much of the brain tissue has but slight physiologic importance; therefore, considerable injury may be done in certain areas without causing symptoms. Hence, much damage to brain tissue may exist and no local symptoms be present.

Injury to the frontal lobes, except the third frontal convolution may occur without motor or sensory symptoms.

Paralysis, however, is not the only evidence of a local lesion. Injury to one center may cause irritation in an adjoining center, manifested by twitchings or spasms of other muscles or groups of muscles. This irritation, if continued, will, by over-stimulation soon exhaust the irritated center and further paralysis will occur. Symptoms of irritation may be present during the period of, and be caused by the reaction from injury, or a secondary inflammation may cause loss of function in one center and irritation in an adjoining center. Usually, however, the symptoms of irritation are not available until after some hours—or days.

Fractures of the base of the skull often present signs which leave no room for doubt as to the diagnosis. Escape of brain substance from ear or nose means fracture through the base of the skull with laceration of brain substance. Discharge of cerebro-spinal fluid means just as unmistakably, fracture of the base with rupture of the membrane. Cerebro-spinal fluid, making its exit from the ear, with or without a rupture of the membrana tympani from the nose or from the Eustachian tube render possible a differential diagnosis as to the location of the line of fracture.

Hemorrhage from the ear, nose or pharynx, unless it continues for some time, should be inter-

preted with caution, although the probability of fracture is great.

The added testimony of paralysis of a cranial nerve increases this probability, and may be of practical importance in locating the fracture. In a few cases, for instance, in which the more prominent symptoms disappear after a few days, examination of the pharynx should always be made in order to determine any loss of function in the large superficial petrosal nerve. Deviation of the uvula, flattening of the soft palate, indicate injury to this nerve, which means a fracture in the pyramid of the petrous portion of the temporal bone. Such care in examination will guard against a too favorable prognosis inspired by the subsidence of other symptoms.

Loss of function in one or more nerves at the base of the skull may, indeed, occur without a fracture. Compression of a nerve in the bony canal through which it makes exit from the skull by extravasated blood, or by inflammatory exudate, may cause such disability. If the extravasation be small, absorption and restoration of function will follow; if it be large, atrophy of the nerve from compression may result in permanent loss of function; if the nerve in its course be torn or lacerated, the loss of function will probably be permanent. In these cases an immediate diagnosis as to whether the lesion be at the origin or in the course of the nerve would be difficult. Paralysis of a single cranial nerve coming in promptly after severe injury to the head, is, however, strong testimony in favor of fracture.

Failure to correctly interpret loss of function in the distribution of a cranial nerve will be frequent, unless due consideration is given to the possibility of the injury, being in the course of, as well as at the origin of the nerve.

If the lesion is at the origin the paralysis will be on the opposite side of the body; if the lesion is in the course of the nerve the paralysis will be on the same side of the body. Certain regional symptoms being present, it will be seen that it may be impossible to make a differential diagnosis or prognosis which the subsequent history or an autopsy will bear out. Detailed knowledge of the paths of the cranial nerves in the base of the skull may be of assistance in reaching a correct diagnosis. Originating in centers known to be separated by a considerable interval, some of the cranial nerves follow paths through the base of the skull which approach each other so closely that two nerves are injured simultaneously. The function of each is altered or destroyed.

The distance separating their centers is known to be such as to make a simultaneous injury to both unlikely, if not impossible. Knowledge of the location of the point at which their paths in the base of the skull are in close proximity renders possible a judgment as to whether the injury be at the center or in the course of the nerve and assists in correctly locating the lesion.

To follow in detail the numerous lines of interest closely allied to this topic would consume far more time than your patience would afford. Let a brief summary suffice for this reading. Injury to vital centers *alone* excepted, on the presence or absence of infection more than on any other factor, depends the outcome in injuries to the head. The extent and character of injuries to the soft tissues of the head are usually readily diagnosed. Subject to inspection and to further examination by keeping in mind the arrangement of these structures, the location of accumulations of blood or serum can be determined and their significance better appreciated.

In injury to the bones of the cranium change of contour can be determined and its importance weighed, consideration being given to the extent of the area injured and to any inward displacement. The possibility of fracture of either or both tables *without* change of contour should not be forgotten. In open injuries diagnosis should be readily made. Closed injuries may have to be converted into open ones before the exact conditions can be determined.

Escape of cerebral tissue or of cerebro-spinal fluid, mean unmistakably, fracture of the base. Hemorrhage from ear or nose should be interpreted with care, although the probability of fracture is great.

Injury to the brain itself is evidenced by the exhibition of functional disturbances which mark the lesion as diffuse or local. Diffuse lesions are concussion and compression. The former marked by a brief period of unconsciousness; the latter by a recurrent or continuous period of insensibility. On the return of consciousness loss of function or symptoms of irritation limited to one group of muscles signifies a local lesion, and as far as knowledge of localization exists, points to the seat of the lesion. If depressed bone, causing pressure, is the cause of the loss of function the function will be restored on elevating the depressed bone. If this does not restore the function the fact of contusion to the brain is emphasized. It may be remembered that considerable damage to brain tissue can exist without any occurrence of local symptoms.

(Discussion on p. 507.)

THE TREATMENT OF HEMORRHOIDS BY INJECTIONS.

BY ARTHUR H. TERRY, M.D.,
Patchogue, N. Y.

Read at the meeting of the Associated Physicians of Long Island
at Southampton, L. I., June 13, 1903.

WHEN I was a third year student of medicine I heard of the use of carbolic acid injections for hemorrhoids, but only in terms of condemnation. I was told that while many cures had been claimed, this method of treatment was entirely irregular and the reports of cures unreliable. It was said that theoretically there was great danger in such injections. One of the chief dangers was embolism, although no death from this complication had been reported. But so much evidence in favor of the method accumulated it was finally decided to try it in a selected case at one of the New York hospitals. On trying it the very complication occurred that had been feared and the patient died of abscess of the liver due to portal embolism.

On hearing all this my confidence in the profession was greatly increased and I became enthusiastic. I was aware of the fact that hemorrhoids were often associated with liver disorders as an effect, but I did not then know that suppurative pyelophlebitis and multiple abscess of the liver had even resulted from the ligation of hemorrhoids and other traumatisms of the rectum.

I supposed this was a unique instance wherein the time-honored custom of a disordered liver causing hemorrhoidal disease had been exactly reversed by the carbolic acid injections. This evidence of ability to foretell results so accurately seemed to indicate that, after all, medicine had become one of the exact sciences. I considered that this correct prediction of the precise effect likely to be caused by an untried experiment, ranked with that celebrated astronomical achievement of Leverrier and Adams, who calculated the position of Neptune before that planet was known to exist. I determined never to meddle with injecting hemorrhoids. In the *American Journal of the Medical Sciences* for July, 1885, I read a convincing article by Dr. Charles B. Kelsey, recommending the injection treatment and reporting 200 cases cured without embolism and without serious complication of any kind. This article referred also to the successful use of carbolic acid injections by an irregular practitioner, who was Dr. Kelsey's neighbor. The injections used by Dr. Kelsey were of a strength varying

from 10 to 50 per cent., the amount of the injection and the strength to be governed by the condition found and the effect desired. He claimed in this article to be able to produce a slough or not, at will—a claim which was soon disputed. In bad cases he intentionally produced large sloughs, resulting in the entire obliteration of the mass, the base of which healed by granulation.

After having abandoned operations in cases of every variety, and every degree of severity, and after having pushed the injections in a way to bring out all their possibilities for both good and evil, he has since repudiated them altogether as uncertain and dangerous. But the faith of some of the disciples has outlived that of the founder, although there has been a tendency of late to use either weaker solutions or smaller doses of strong ones.

A 10-per-cent. mixture of carbolic acid in equal parts of Pond's extract of Hamamelis and water is a formula which has been used extensively. I have never tried it. In 1888 I saw in the columns of a medical journal the following prescription for injecting piles: Rub together 1 drachm of salicylic acid and $1\frac{1}{2}$ drachms of glycerin, add 2 drachms of carbolic acid. To this add 1 drachm of borax and $1\frac{1}{2}$ drachms of glycerin. Let stand until clear, and inject 3 to 5 drops into small piles and 5 to 8 into large ones. The writer advised repeating every ten days, said he had used it a long time, had found it entirely safe, that it never gave rise to inflammation or suppuration and that it caused the piles to become smaller and disappear.

This is the formula I have invariably used for injections, although I have not depended on injections exclusively, in the treatment of hemorrhoids.

Shortly after reading this formula a gentleman, who had taken a cottage near my office, and who was undergoing, or perhaps I should say was indulging, in treatment by an irregular practitioner, presumed to be the one before referred to, came to me and told me he would like to avoid the inconvenience of going to New York every week, and asked me if I could not treat him for hemorrhoids by the injection method. Having read Dr. Kelsey's and the other article mentioned, and being influenced by the patient's satisfaction with the injections, I decided to undertake the case. For I reasoned that when an intelligent person, suffering from disease which was not dangerous to life, had been honestly told the advantages and drawbacks of the means of relief available, if he elected to be relieved eventually by treatment rather than to be cured at once

by radical interference, there was no good reason why he should be denied the privilege. It was evident that for this man the injection treatment had a peculiar charm. For on asking him if he had found the treatment painful he replied, "On the contrary, it was agreeable rather than otherwise." This indicated a perfection of skill which must be very difficult to attain and of which its possessor will probably continue to enjoy a monopoly. The patient's experience with me was quite different. He had an irritable sphincter. The hemorrhoids did not protrude and could not be easily brought down. The speculum hurt him and my rather thorough preliminary examination gave him so much more pain than the other doctor did in his treatment that he not unnaturally decided that the irregular man knew his business best. He returned to his first doctor, who, as I afterward learned, cured him completely, and I hope agreeably. This experience was discouraging and humiliating, but I saw where at least a part of the trouble was and immediately took measures to improve my armamentarium. Some time afterward I saw a patient at a clinic submit to the insertion of first a small and then a medium and finally the largest size proctoscope, the first two without a murmur and the last with suppressed groans, while the class applauded his fortitude. The patient permitted one member of the class after another to examine him without any signs of rebellion, and I wondered how many private patients, examined in this way, would return to their tormentor for treatment.

The speculum that I now use and find very convenient is a light aluminum bivalve with slides in each side, known as O'Neil's speculum. This speculum requires very little expansion to become self-retaining and by opening the slides the hemorrhoids can be easily brought into view. There is very little tendency for a hemorrhoid to catch in the opening left on withdrawing the slide, a fault I have found in some other specula, causing the patient to suffer more from attempts to disengage the pile or to withdraw the speculum than he suffers from the introduction or the treatment.

I got along much better than at first with the next case I had.

CASE I.—Mr. W., aged 40, well-driver, had suffered with hemorrhoids for several years. He did a great deal of hard work, both at home and in neighboring villages. He always carried a bulb syringe with him and when he had to relieve his bowels he used an injection, after which he

would lie down for one or two hours. His condition finally became so serious that he was obliged to give up work, and he was confined to the house when I saw him. Examination showed several large hemorrhoids and a large mass on the right side was easily protruded. The case seemed too severe to think of curing with injections. An operation was clearly indicated and advised. On discussing the matter it was decided to try the carbolic acid. Injections of the solution I have mentioned were given at intervals of a week. At the end of a month he was much improved and resumed his work. Treatment was continued for another month. At the end of this time he was by no means cured, from my point of view. But he was very much better than he had been in a long time. About a year after he came to my office for another injection, saying that he was having some trouble again. This time I found it convenient to use a speculum to reach the part. Since then I have seen him many times, but have never treated him. He always refers to the great benefit he received from the injections. He was a very loquacious individual and had been inclined to boast of his suffering to every one who would listen. The vanity he had manifested about his disease was only exceeded by his elation at what he considered his remarkable cure. The gratuitous advertising he gave me was quite unsolicited and, therefore, entirely ethical, but it certainly was very effective, for I soon found myself with quite a large hemorrhoidal *clientele*. Most of the cases I have treated in this way have been of moderate severity and the results have been very satisfactory. It not infrequently happens that patients express great relief from the injections before the condition, on examination, appears to be much improved. This has one disadvantage compared to operations, where all that is necessary can be done at once, for occasionally patients, for one reason or another, abandon the treatment when the symptoms are relieved and before they are entirely well.

The following case shows the benefit that may be gained in still less favorable conditions:

CASE II.—Mrs. R., aged 60, sallow, anemic, suffering with chronic nephritis, edema of ankles and face, subject to attacks of facial erysipelas. Has suffered with hemorrhoids and prolapse of rectum for twenty years. During past five years has had several alarming hemorrhages from the rectum. Various insufficient measures have been tried to support the prolapse. At the time of beginning treatment she could not stand up, or walk across the floor, without holding up the

parts with the hand. Sphincter and all the neighboring tissues relaxed. It was evident that an extensive operation would be required to cure the case, but her general condition was such that it was not to be advised. Treatment was begun without a promise of cure, but she was told it would benefit her. The mucous membrane covering the irregular mass was in some places thickened, while other places were excoriated and bled at the slightest touch. The bleeding points were touched with nitric acid and on several occasions with the thermocautery. The first injection caused troublesome bleeding at the needle puncture. Subsequent injections were given in sounder tissue near the base of the swelling and an attempt made to cause a contraction of the deeper parts. After fifteen injections the treatment was discontinued. This patient had some pain after the injections, but as she was very nervous and timid, and had a great deal of pain anyway it was difficult to estimate just how much pain the injections caused. After three of the injections there was slight strangury, an effect I had not seen in any other case. The prolapse still occurred when the bowels moved, but not at other times. She was able not only to go about the house and do light housework but to walk a considerable distance comfortably. As the hemorrhages had been controlled and the urgent symptoms relieved it was not thought best to advise further local treatment for this patient, whose general condition was such that any kind of interference was badly borne and gave rise to some anxiety. While it is true that the result left much to be desired and was not comparable in thoroughness to what might have been attained by operation, or even by more vigorous or more persistent use of injections, still it added very much to the comfort and safety of the patient and made what had become the most serious of her ailments one of comparatively little importance. But the injection method is not to be looked upon merely as a weak alternative to be used only where operation is contraindicated or refused. The cases in which the treatment is very satisfactory are those in which there is not extensive rectal disease, but where single well defined piles exist which refuse to yield to such palliative measures as ointment suppositories and regulation of the bowels, and yet are not serious enough to require a surgical operation.

CASE III.—Mrs. R., aged 40, said that for about two years she had had a little trouble in the rectum. "Something came down" when the bowels moved. Lately she had been much worse and

this swelling now seemed to come down in front of the movement and to interfere with defecation. Examination revealed a hemorrhoid, a little larger than a hazel nut, with a large base on the anterior wall of the rectum just inside the sphincter. It could be brought into view by passing a finger into the vagina and depressing it. When thus depressed it appeared much larger than it had on touching it. An injection was given and it was replaced. She returned in a week saying that the injection had given but trifling inconvenience and that she was better. This time it was more difficult to bring it down and a speculum was used and another injection made. She returned in ten days and said she had had no further trouble. A third injection was given and she was told that if she had no more symptoms she need not return. She returned, however, in two weeks, to be sure she was all right. There was not enough of the swelling left to indicate any further treatment and she was discharged.

CASE IV.—Mr. J., aged seventy-nine. Three years before had had an operation for enlarged prostate. He is dependent now on catheter, to empty bladder. Had occasionally suffered with hemorrhoids for years. For past year had had some pain on defecation and a movement is always followed by slight but persistent bleeding. Has tried a great variety of ointments and suppositories. On one side of the anus there is a tag over the site of an external hemorrhoid, which occasionally becomes inflamed and painful. Internally a small hemorrhoid attached by a long, narrow base, that extends one inch up the rectum. On the lower part of this hemorrhoid a small wart-like growth that does not bleed. Several other points bleed easily. Patient is very timid about treatment. Eight small injections were given, and the patient was entirely cured. In this case not the slightest pain was experienced. The patient was too deaf to converse during the treatment and invariably asked afterward if I had made the injection. It was proposed to snip off the external tag under cocaine after the internal trouble was cured, but he said that he could not bear the thought of even a "snipping operation," and as the external hemorrhoid seldom troubled him he decided to let it alone. He would willingly have let me inject it, if I had so advised, but injections are not the treatment for external hemorrhoids.

I have attempted in this paper to give my own experience without theorizing or quoting authorities, and the cases I have selected will serve to

show what may be expected from the cautious use of small injections.

I do not know that there is any special advantage in the combination I have used. I can simply state that I have used it for fifteen years in most of the cases that have occurred in my practice, and that I have never seen any bad results from it. I never use more than two minims at any one point, but often inject it in several places at one visit. I have never seen any sloughing and very rarely any painful inflammation. The reaction is generally limited to a small area about the puncture, and is shown by increased redness at that point. But occasionally there will be dull aching, lasting a day or two. I always tell patients that this may happen, but it is quite exceptional.

In regard to patients' objections to operation for piles, it must be admitted that they are not altogether groundless. The having an anesthetic administered, its often unpleasant after effects, its occasional dangers, the discomfort, and even pain, of convalescence, which are sometimes very great, and the detention in bed are perfectly valid objections, and many sufferers go through life unrelieved rather than submit to the knife, who would be quite willing to permit a procedure which is only technically surgical and which, while the profession opposes it as unsurgical, the laity favors as non-surgical. Of course no conscientious physician, for the sake of conforming to his patient's wishes, will do anything that experience condemns, but I believe the chief danger of the treatment lies in attempts to make the injections compete with operative surgery in range of application and in promptness of results.

To the surgeon who does in a half hour or less what by injections will require weeks and perhaps months to accomplish, and who very properly reasons that the objections to operations, important as they are, are of little consequence compared to the certain benefit that will result, this method will seem intolerably slow and unsatisfactory. One is almost open to a charge of heresy who advocates slower and less certain means for the cure of diseases, which it is known can be quickly and completely cured by the precise operations of surgery. But patients have to be consulted about what they will permit, as well as advised, and there can be no question but that all cases of hemorrhoids can be benefited, and many cases can be completely and comparatively painlessly cured, without the so much dreaded operations.

A CASE OF MULTIPLE LIPOMA.

BY C. F. BARBER, M.D.,
Surgeon Kings County Hospital, Etc.

LIPOMA, *per se*, is not of sufficient interest to the surgeon to cause him either anxiety so far as results are concerned or a second thought as to diagnosis.

It is, in fact, a common form of benign tumor of a fatty composition, occurring within many of the organs of the body but found, most frequently, encapsulated just beneath the skin. In size it varies from an almost imperceptible growth to a tumor reaching one hundred pounds in weight.

It usually occurs singly, now and then in groups, but rarely in great numbers. It is, therefore, owing to the preponderance in numbers of this form of neoplasm in this individual case that I present it for record.

G. A.; a well nourished man of about fifty-five years presented himself for examination some 10 years ago with a number of fatty tumors upon his arm and lower extremities. I then advised their removal but for some reason of his own the matter was dropped until this July when he called again for advice. This visit was occasioned by the pain produced by the pressure of the tumors upon the nerves of the arm; one of the lipomata having assumed a sufficient size to encroach upon the nerves at the wrist. His hideous appearance when undressed caused him no little annoyance. How much he had changed since my first visit I am unable to record but at this examination I was amazed to find the number of growths that could crowd themselves upon the extremities. Both arms and forearms to wrists were so nodulated by small and large lipoma that the interspaces where the normal contour of the arm was preserved seemed like atrophied areas. His lower extremities from waist to knees were in the same condition.

I have frequently seen these growths upon the back, shoulders or buttocks, but in this case none existed in any of these localities.

To sterilize him for operation practically meant a general bath in green soap and antiseptics.

Under general anesthesia about 80 (counted 82) fatty tumors were removed. Forty-seven incisions were necessary for their removal. The tumors varied in size from a cherry to a swelling six inches in diameter. The one requiring the greatest care for its removal was located in the right groin, lying partly upon the femoral vein

and artery, its lobes reaching under the vessels. The time required for the removal was two and one-half hours. I am pleased to add, although the incisions were numerous, not a drop of pus was found at a dressing and primary union rewarded our labors. Had I not had the able assistance of Drs. Maddren and Woolsey in closing the wounds I should not have been able to have finished the operation within four hours.

The patient was out of bed in five days and attending to business in ten days. Strange as it may seem little or no inconvenience was experienced by the patient although it seemed as though every move drew upon some of the incisions.

Suture materials of all kinds were used, silk, catgut, silk wormgut; as we exhausted the supply of one, the remaining kinds would have to be brought into service. The result is satisfactory proof of the sterilized condition of the materials.

The case is rather unique, and it is for that reason that I inflict it upon the readers of the JOURNAL.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

STATED MEETING, SEPTEMBER 15, 1903.

The President, CHARLES N. COX, M.D., in the Chair.

There were about 80 members present.

The meeting was called to order, and the minutes of the previous meeting read and approved.

ELECTION OF MEMBERS.

The following, having been duly proposed and accepted, were declared, by the President, elected to active membership:

V. S. Pier, P. & S., 1900.

E. G. Van Orsdell, Albany Med. Coll., 1902.

The President announced the deaths of the following members since the last meeting:

Thomas Moore Rochester, University Buffalo, Medical Dept., 1878; died July 12, 1903; member, 1878 to 1902.

George Chappell Crawford, L. I. C. H., 1894; died July 13, 1903.

Henry De Haven Cameron, P. & S., 1889; died September 4, 1903.

The President mentioned that he was in receipt of advice from the Treasurer, that there were about 300 members in arrears for dues for 1903,

and requested that the delinquents settle their indebtedness as soon as possible.

SCIENTIFIC PROGRAM.

1. Paper: *The Medical Treatment of Cholelithiasis and its Limitations.* By DR. J. FUHS.

2. Paper: *Treatment of Uterine Carcinoma by Combined Use of Finsen Light and Roentgen Ray.* By DR. GEORGE G. HOPKINS.

Adjourned.

WM. S. HUBBARD,
Secretary.

MEDICAL SOCIETY OF THE COUNTY OF KINGS. SECTION ON PEDIATRICS.

Regular meeting, September 11, 1903, WM. A. NORTHRIDGE, M.D., Chairman; C. LE GRAND KERR, Editor.

REPORT OF SOME CASES OF DIPHTHERIA.

BY ALFRED E. SHIPLEY, M.D.

THE use of antitoxin in diphtheria is so general, and its value so well recognized, that the only apology for reading this paper is to present to you a number of cases, all of which occurred at the same place, under the same conditions, and allowing some observations to be made which may be of interest to note.

HISTORY.

The report embraces 33 cases which occurred at the Eastern District Industrial School of this city. The disease began during the service of the writer in July of this year, 16 cases developing during that month, 14 other children came under the observation of Dr. Walter H. Ross during August, and three cases in September under Dr. Charles E. Scofield. I am indebted to Dr. Ross and Dr. Scofield for information enabling me to make a complete report.

The institution has about 350 children under its care, but the disease started and was practically confined to one ward of the school containing about 65 children.

The first three cases were observed on July 20th, and, for the following nine days, one or two new ones appeared each day. Then no new cases appearing for three or four days, it was thought possible that the spread of the disease was under control, but during the first week in August, a child was sent over to the hospital nearly every day suffering from the infection. About

August 10th, Dr. Ross, who was then on service, decided to immunize the rest of the children in the ward from which the trouble originated. A dose of 300 to 500 units of antitoxin was therefore given to each of 40 to 50 children. The day following immunization, one case was observed with one small patch to whom he gave an additional 500 units with prompt recovery. One child showed evidence of trouble 12 to 14 days after having been immunized, to whom then was given the full dose. A quiet interval of 12 days was succeeded by three new cases occurring three to five days apart, and coming from wards in which the inmates had not been immunized. Thirty of the children have been returned to the institution fully recovered, and the last three cases are still in the hospital awaiting the termination of the period of quarantine.

OBSERVATIONS.

Value of Antitoxin.—Experience has shown to us that the greatest efficiency from antitoxin is to be obtained when used early in the disease, and that the good results derived from its use decrease in proportion to the length of time that has elapsed since the beginning of the infection. Antitoxin injected after the fourth or fifth day cannot be relied upon to give the almost uniformly good results which obtain from an earlier use. All of the children in this institution were under careful observation after the first case, any child showing the slightest suspicious symptom being referred immediately to the physician then on duty, and several times a routine examination of the throats of all the children was made. Practically all of the cases were seen on the first day of the disease, or at the latest within 48 hours of the invasion.

Dosage.—The first four or five cases each received 3,000 units of the serum. Afterward the dose was reduced to 2,000 units, and in August a few of the cases received but 1,500 units. In one child, to whom was given the last mentioned amount, an extension of the membrane from the throat to the nose occurred, and an additional 1,500 units was then used, this being done two days after the first treatment. In no other instance was it necessary to repeat the dose. One child with a mild attack did not receive any serum at all. If the reduction of temperature be taken as a guide, the 2,000 unit dose seemed to be fully as effective as the larger.

Location of Membrane.—In the majority of cases the membrane was seen on both tonsils, in a few on but one tonsil, one or two showed a tend-

ency to invade the uvula also, in one it extended to the nose, and still another came under first observation as a combined pharyngeal and nasal infection. No primary laryngeal form was received, nor was there in any case an extension of the disease from the pharynx to the larynx.

Temperature.—This was taken in each case as soon as it was sent over to the hospital and before the antitoxin was used. It ranged from $99\frac{3}{5}^{\circ}$ to 101° in the milder forms, to $103\frac{3}{5}^{\circ}$ and $105\frac{1}{5}^{\circ}$ in the more severe. After the serum had been used, within 24 hours there was a reduction in every case. A few showed a decrease of but $\frac{2}{5}$ to $\frac{3}{5}$ of a degree, though a drop of 1 to 2° was usually noted, and two or three cases showed a reduction from 103 and 104° down to 100° . A temperature of $105\frac{1}{5}^{\circ}$ was observed to drop to $99\frac{3}{5}^{\circ}$ on the following day. In the child to whom no antitoxin was given an initial temperature of 100° continued so for the next 48 hours. In the primary nasal case, it was only $99\frac{3}{5}^{\circ}$ when first taken.

In most of the children there was a steady decrease in temperature until about the sixth or eighth day, when it reached the normal point, though in several instances the marked decrease of the first 24 hours was followed for two or three days by no reduction, after which it would steadily drop.

The nurse in attendance reported that almost invariably during the first night after the use of the antitoxin the patient showed a marked delirium, and, inasmuch as this occurred regardless of the height of the temperature, the explanation could not be sought in that direction. It is possible that the antitoxin serum antagonizing the toxin of the disease produced this effect.

Pulse.—The pulse was in proportion to the temperature, ranging from 92 in the mild forms to 160 in the severe. In but two cases was any irregularity of the pulse observed, this occurring on the fourth to the seventh day of the disease, and improving under appropriate medication.

The general rule was to allow the children out of bed after the sixth or seventh day.

Complications.—In one case a rash, resembling measles, and covering both upper and lower extremities, appeared about the fourteenth day. In the nasal case which required a second injection of the serum, a paralysis of the soft palate occurred about the third week, but this cleared up under treatment. In one child disappearance of the membrane was followed by an abscess formation in both tonsils resembling quincy, with prompt subsidence after spontaneous rupture.

Still another patient had the abscess in one tonsil.

Termination.—Thirty of the cases have fully recovered, and the other three are convalescing rapidly. The membrane usually began to dissolve immediately after the use of the serum, and very little if any was to be seen after the fifth day.

Treatment.—In addition to antitoxin the treatment was as follows: A combination of 5 minims of ferric chloride with gr. $\frac{1}{64}$ of mercuric chloride, three times a day. Antiseptic mouth washes every two to three hours. From the second day, whisky in half-dram doses, three or four times a day was given, this being stopped on the fourth or fifth day, and instead strychnine sulph. gr. $\frac{1}{60}$ t. i. d. was administered for 10 days or two weeks. For irregular heart action, an additional dose of strychnia.

Immunization.—An opportunity to test its efficiency was here presented. The ward from which the disease started contained about 65 children, and after 20 to 25 cases had occurred, the rest of the inmates each received an immunizing dose of 300 to 500 units. One case showed congested tonsils with a very small patch on the following day, and it is probable that had not the immunizing dose been given, the throat would have shown typical diphtheritic membrane instead. It is possible, too, that the congestion was due to the antitoxin itself. One other immunized case showed the characteristic membrane on both tonsils, 10 to 12 days after the injection was given. It is fair to assume from the history recorded that the further spreading of the infection was prevented by the immunizing treatment. The four or five new cases which afterward developed came from other wards, with an interval of three to eight days between each new case.

This series of over 30 cases of diphtheria with prompt recovery in each instance after the use of antitoxin serum is but another link in the chain of evidence supporting the claims made for this highly important therapeutic agent.

DISCUSSION.

DR. WILLIAM A. NORTHRIDGE: I am in the habit of giving an immunizing dose of antitoxin to the well members in the families of diphtheria cases and I am much pleased with the protective power of antitoxin.

I have had one case after immunization—a boy of five finished a plate of ice cream which his diphtheritic brother had left. He suffered a very mild attack.

As to the amount of antitoxin to use. Here Dr. Shipley reports over 30 cases, with the diagnosis confirmed by the board of health and only one injection given in each case except one, and not more than 1,500 units given in any single injection and 100 per cent. of recoveries.

Is the growing fashion of giving enormous doses in every case a good one? I believe right here our best judgment should be used and the large doses reserved for the grave cases.

In the ordinary case, I give 2,000 units and wait 24 hours and then repeat if necessary. The antitoxin should be fresh.

I believe it gradually loses much of its power.

A good firm pinch is all the anesthetic required on introducing the needle.

One must be careful not to pinch too hard.

These patients should be kept quietly in bed in as near the supine position as possible for at least four weeks and where there are any signs of paralysis, for a longer period. A life would be occasionally saved if this was always done.

THE BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, APRIL 2, 1903.

The President, W. M. FRIEND, M.D., in the Chair.

SUPPURATIVE APPENDICITIS COMPLICATED WITH FECAL FISTULA.

BY F. W. WUNDERLICH, M.D.

N. S., age sixteen, native of United States, was admitted to St. Peter's Hospital, July 8, 1901, suffering with appendicitis. She had been sick a week with the usual symptoms of a sudden attack of severe abdominal pain, which abated somewhat. Subsequently she had colicky pains, accompanied with fever and acceleration of the pulse.

At time of admission her condition was critical. She had severe pain in the abdomen. Temperature 103.8°, pulse 130. A tumor with marked tenderness and dullness on percussion were present in the right iliac region.

Operation on the day of admission to the hospital. The abdominal cavity was opened by an oblique incision over the most prominent portion of the tumor. A large collection of foul-smelling pus was found in an abscess cavity, surrounded by a mass of adhesions, which communicated with another large abscess cavity in the post-peritoneal connective tissue. The patient's con-

dition did not admit of a prolonged search for the appendix. The abscess cavity was washed out repeatedly with normal salt solution. The wound was partially closed with silk-worm-gut sutures. A glass tube was inserted for drainage, the wound dressed with absorbent gauze and absorbent cotton, held in place by strips of adhesive plaster and a binder.

July 9—Patient feels better. Temperature 100°, pulse 108. Discharge is copious.

July 10 to 17—Discharge continued to be profuse. Temperature ranged from 100 to 101.4°, pulse from 84 to 104. General condition of patient improved slowly.

July 18—During the night the discharge was quite profuse. A remnant of the gangrenous appendix and a coprolite were found in the wound, when the dressing was changed.

July 19—Patient has less pain, suppuration still profuse. Temperature 100.4°, pulse 84.

July 20—Is hungry. Complains of pain in epigastrium. Temperature 100°, pulse 84.

July 21—Patient was nauseated all night, and vomited bile mixed with mucus. At 9 A.M., temperature 101.4°, pulse 116; at 5 P.M., temperature 102°, pulse 120.

July 22—Profuse discharge. More necrosed tissue came away. A.M., temperature 100°, pulse 98; P.M., temperature 99.4°, pulse 92.

July 23—Patient feels better to-day. Some necrosed tissue came away. Temperature 99.6°, pulse 92.

July 24 to 26—Condition about the same. Discharge not so profuse.

July 27—Owing to contraction of the wound it was impossible to drain the abscess cavity in the post-peritoneal connective tissue satisfactorily in front; a counter opening was therefore made in the lumbar region and a glass tube inserted for drainage.

July 28 to August 9—Patient improved slowly, and the discharge diminished.

August 10—Temperature 101°, pulse 112. Drainage was deficient because the tube had slipped out. The tube was reinserted and better drainage established. A small prominence appeared on the coil of the small intestine, which was adherent to the anterior wall of the abdomen at the upper angle of the wound.

August 11 and 12—Although the prominence on the coil of intestine had been covered with rubber tissue, and carefully supported with gauze and strips of adhesive plaster, it became larger; it attained the size of a large split pea and the wall became thinner. The patient had no pain at

the site of the swelling. She had more or less nausea, and vomited early in the morning of the twelfth; later in the day she felt better.

August 13—Early in the morning, a large amount of offensive discharge escaped from an opening in the intestines which had formed at the site where the prominence had been. The discharge was fecal in character.

August 14 to 19—Condition remained about the same. A large amount of fecal matter was discharged through the fistula.

August 19 to 31—Temperature 98.4, with a rise on the twenty-fifth to 101, pulse ranged from 76 to 94. General condition improved gradually, and the discharge of pus and fecal matter became less.

September 1 to 25—Patient progressed favorably. Both abscess cavities had healed, but the discharge from the fistula persisted. A proposition to close the fistula by operation was rejected.

September 26 to October 28—Under a dressing of absorbent gauze and unguent. zinci oxid. albi, with occasional applications of nitrate of silver, the fistula gradually became smaller and finally healed.

The patient was discharged from the hospital October 28, 1901.

The points of interest in this case are:

1.—The formation of a fecal fistula as late as 36 days after operation.

2.—The formation of the fistula could be observed for several days, and the support given to the bulging weak spot in the wall of the intestine was of no avail to prevent the formation of the fistula.

In all probability, it was caused by angulation of the adherent coil of intestine, in conjunction with pressure from accumulated fecal matter.

G. E., age 23, native of England, waiter, was admitted to St. Peter's Hospital, July 12, 1901. He walked into the hospital, did not have much pain, and did not appear to be seriously ill. Temperature 89, pulse 88. Rigidity of the muscles of the right side of the abdomen was not marked, and a tumor could not be felt distinctly. The patient had been sick about a week. He had colicky pains in the umbilical and right iliac region. At no time did he have very acute pain or nausea.

July 13—Operation. The abdomen was opened by an oblique incision. An abscess cavity was opened, which extended further to the median line than is ordinarily the case in appendicular abscess. About 8 or 10 ounces of pus were evacuated, and the cavity washed out with normal salt solution. The abscess cavity was walled off by firm adhesions. Owing to the un-

usual position of the abscess cavity, the search for the appendix was soon abandoned, because of the greater risk of infecting the general peritoneal cavity by breaking through adhesions in this locality. The wound was partially closed with silkworm-gut sutures. A glass tube was inserted for drainage, the wound dressed with absorbent gauze and absorbent cotton, held in place by strips of adhesive plaster and a binder.

The convalescence was rather protracted, the wound reopening several times after it had apparently healed.

The patient was discharged from the Hospital Sept. 17, with the wound healed.

December 9, 1901—Five months after operation, he was again admitted to the hospital, with a fistula at the lower angle of the operation wound. The fistula had developed some time prior to his admission. The fistula passed inwards and to median line and with a probe a concretion could be felt at the end. The outer portion of the fistula was dilated with a laminaria tent, to facilitate the removal of the concretion, but all attempts to accomplish this with forceps, small spoons and curettes failed, owing to the tortuous course of the deeper portion of the fistula. Evidently the concretion was located in or near the remnant of the appendix, and it was decided, if possible, to dissect out the fistula, and to remove both appendix and concretion by operation.

December 10—After the fistula and field of operation had been thoroughly cleaned and disinfected, the abdominal cavity was opened by an incision above the fistula. At this stage the plan of the operation had to be abandoned, because a coil of intestines was adherent to the anterior wall of the abdomen at the upper angle of the wound and another coil close to the fistula. The incision was closed with silkworm-gut sutures. The orifice of the fistula was incised, the deeper portion dilated and the concretion removed. Subsequently the fistula was curetted and thoroughly disinfected with hydrogen dioxide, carbolic acid and alcohol. A small piece of absorbent gauze was inserted for drainage. The wound was dressed with absorbent gauze and absorbent cotton, held in place by strips of adhesive plaster and a binder.

December 12—Was restless during the night. Pain has increased. Temperature 102.5, pulse 120. Evidently the wound had been infected. The dressing was removed, the sutures were taken out, and the wound dressed with gauze moistened with a solution of chloride of zinc. (1:2,000). As soon as the sutures had been removed, some sero-

purulent matter was discharged, and after the moist dressing had been in place a short time the pain subsided.

December 13—Patient passed a comfortable night and feels much better. Temp. 98.4, pulse 88. The wound was gaping.

December 14 to December 22—No material change in the condition of the patient. The fistula healed slowly and the discharge from the wound diminished.

December 23—For the first time a small eminence projecting from the wall of the small intestine was noticed, which was adherent to the anterior wall of the abdomen, at the upper angle of the wound, caused by appendicular abscess in July, 1901.

December 24 to December 29—The reporter had an opportunity to observe the development of a fecal fistula precisely as in the first case. It began with the formation of a small prominence projecting from the wall of the intestines, which gradually increased in size, while the wall became thinner in proportion, and finally gave away. The only difference was, it took a longer time to develop in this case than in the former, 6 days instead of 3. All means taken to support the prominence, to prevent if possible its attenuation and breaking down, were as useless in this case as they had been in the preceding case.

December 30—The prominent portion of the intestinal wall had given away during the night, and a fecal fistula was fully established.

December 31, 1901, to January 31, 1902—The fistula with which the patient had been admitted, gradually healed, and the wound surrounding the intestinal fistula became smaller, but the latter showed no tendency to close up, although a rubber tube had been kept in the intestine during the greater portion of the time, to prevent the formation of a spur and rectify angulation as much as possible.

February 1 to 21—General condition of the patient much improved. All except the intestinal fistula had healed. The latter showed no tendency to heal. The patient desired to have the fistula closed by operation.

February 22—The intestine was cleaned by injections as much as possible. A sponge with a silk thread attached to it, was inserted through the fistula. The fistula and the surrounding area carefully washed and disinfected. During the preliminary proceedings, rubber gloves were worn which were taken off when the operation proper was commenced. An incision was made about one and one-half inches above the upper

margin of the fistula, and after the peritoneal cavity had been opened, the incision was carried down close to the fistula, the latter dissected loose from the surrounding tissues, the loop of intestine was lifted out from the abdominal cavity and placed on a warm towel, moist with normal salt solution. All cicatricial tissue was dissected off, the sponge was withdrawn, the fistula closed with two rows of silk Lembert sutures, the line of sutures carefully cleaned with normal salt solution, and the loop of intestines returned to the abdominal cavity. The peritoneum was closed with a continuous catgut suture, the remainder of the tissues were brought together with silkworm-gut sutures. The wound was dressed with absorbent gauze and absorbent cotton, held in place by strips of adhesive plaster and a binder.

February 23 to 28—Patient had no pain, temp. 98.4, pulse ranged from 80 to 88. When sutures were taken out on the 28th, the wound had healed by first intention throughout.

The patient was kept in bed for some time, as a precaution, to obtain firm union of the wound before any strain was put upon it, and to prevent formation of a ventral hernia.

He was discharged from the Hospital March 28, 1902, and has remained in good health since.

F. L., age 16, office boy, native of U. S., was seized with colicky pains December 21, 1902. He continued to have intermittent attacks of pain, more or less severe, from December 22 to December 25, and remained at home.

December 26—The pain became more severe, and he commenced to vomit. Dr. Jos. E. Wells was called in and attended to him December 26 and 27. Dr. Wells ordered a dose of calomel, to be followed by a saline cathartic. On the following day, after the medicine had acted, he found the patient so much better, that he discontinued his visits until he was called again January 2, 1903. The improvement had been of short duration. Intermittent attacks of colicky pains had returned and increased in severity. The patient became nauseated, could not retain any food and vomited at times.

When Dr. Wells saw the patient again January 2, he had had a chill followed by high fever. Temp. 103.½, pulse very rapid, the skin was covered with clammy perspiration and slightly jaundiced. The vomiting had ceased, but nausea was present and no food was retained. The fever was of an irregular type, with a rise about 11 A.M., a decline at 2 or 3 P.M., and another rise at 6 P.M.

January 4—Dr. Wells noticed for the first time,

a swelling in the left inguinal region. The swelling rapidly increased in size, and advanced upwards.

January 6—Dr. Wells found the swelling larger, inserted an exploring needle, drew off pus, and advised the removal of the patient to St. Peter's Hospital.

January 6—On admission to the hospital, the patient looked very pale, the skin was moist and clammy. Temp. 104, pulse 130, and feeble. He complained of severe pain in the left side of the abdomen, also of nausea and vomited frequently. Operation on the day of admission. Marked rigidity of the muscles on the left side of the abdomen was present. Also a tumor in the left inguinal and the adjoining portion of the hypogastric region, which became more distinct when the patient came under the influence of the anesthetic.

The incision was made over the most prominent portion of the tumor, and as soon as the abdominal cavity was opened a large amount of foul-smelling pus was evacuated. At the upper end of the wound coils of small intestine were adherent to the anterior wall of the abdomen. After the pus had been evacuated as much as possible, the abscess cavity was filled repeatedly with warm normal salt solution and syphoned out, until it came away pretty clear. The finger could move freely in a large cavity, down to the bladder, to Poupart's ligament and below into the pelvis. The large intestines were held down by adhesions, while the small intestines were held up by adhesions to the anterior wall of the abdomen and adhesions between the different coils of intestine. Owing to the condition of the patient, it was considered unjustifiable to make a prolonged search for the appendix, which, in all probability, was in an abnormal position.

The wound was partially closed. A long glass tube was inserted, the outer end was curved and a long rubber tube fastened to it for drainage by syphon suction. The wound was dressed with absorbent gauze, absorbent cotton over this, strips of adhesive plaster and a binder to keep it in place.

January 7—Patient slept quietly during the night, and the pain has been relieved. Temp. 100, pulse 96. The discharge was profuse, the dressing had to be changed several times a day. The abscess cavity was washed out with normal salt solution. The desire for food returned.

January 8—Patient rested quietly during the night and feels stronger. Temperature 99, pulse 90. Discharge is profuse.

January 9 to January 25—The discharge gradually diminished in quantity, and the abscess cavity became smaller. Correspondingly short tubes were inserted for drainage. Patient had a good appetite, he gained in weight and strength.

January 26 to January 31—Patient continued to improve. Irrigation with saline solution was omitted.

February 1 to 8—Patient progressed favorably.

February 9—Without any apparent cause he was seized with nausea, and complained of pain in the abdomen. Temp. 100, pulse 98. Hydrarg. chlorid. mit. gr. I Saccharr. alb. gr. X-M. f. chart. IV-S. One powder every hour was ordered. The bowels moved and the nausea was relieved for a short time.

February 10—Nausea returned and the patient complained of more pain in the abdomen. Tenderness on pressure was present in left side of abdomen. Temp. 100.4, pulse 100. Magnesia citrate was given but rejected at once. A high glycerine enema brought away some fecal matter, but the condition of the patient remained about the same. Toward evening some fecal matter was discharged from the wound.

February 11—During the night and forenoon a copious discharge of fecal matter took place from the upper angle of the wound. It escaped from a small opening in the coil of the small intestine, which was adherent to the anterior wall of the abdomen. As soon as free discharge had taken place, the pain was relieved and the nausea ceased.

February 13—Patient is free from pain, his appetite is good, and there is little discharge from the fistula.

February 15—Condition better. No discharge from fistula.

February 16 to 28—Patient remained free from pain, his general condition continued to improve, and his bowels moved regular without any medication. The wound healed gradually, and there was no recurrence of fecal discharge from it.

March 7—Discharged from hospital.

The points of interest in this case are:

1.—The site of the abscess, its extent and the firm wall formed by the adhesion between the coils of the small intestines and the anterior wall of the abdomen.

2.—The formation of a fecal fistula 35 days after the operation for abscess, and the short time in which it healed definitely.

In this as in the other cases, the formation of the fecal fistula, in all probability, was brought about by angulation of an adherent coil of intes-

tine in conjunction with pressure and distension from accumulated fecal matter above the point of angulation.

DISCUSSION.

DR. G. R. FOWLER said that Dr. Wunderlich's cases are of interest because of the spontaneous closure of the fistulous opening of the small intestine. While the common experience is that fistulous openings in the large intestine close simultaneously, it is quite the reverse in the case of the small intestine. In the majority of cases some operative procedure is indicated at some time in the course of the case.

In his experience the occurrence of fecal fistula in connection with appendicitis has occurred most frequently in cases of tubercular peritonitis in conjunction with an appendical lesion, i. e., the fistula of the small intestine. Fistula of the small intestine occurs to a greater or less extent because of sloughing away of the stump beyond the ligature of purse-string suture and occurrence of gangrenous patches on the cecum itself in connection with the original inflammatory condition.

SUBPERIOSTEAL RESECTION OF THE ULNA.

DR. A. T. BRISTOW presented a case with a history of tubercular bone disease, to show the function after the removal, by a sub-periosteal resection of the entire ulna except the upper articular portion, done about two months ago. The entire bone had regenerated with complete function of the forearm.

SUBPERIOSTEAL RESECTION OF MIDDLE THIRD OF CLAVICLE.

DR. A. T. BRISTOW also showed a case in which he removed the middle third of the clavicle—also subperiosteally, for superabundant callus which pressed on the subclavian vein and the lowest cord of the brachial plexus.

The case had been previously diagnosed as rheumatism, but it was perfectly evident on examination of the clavicle that a callus had formed which was pressing on the subclavian vein and the lower cord of the brachial plexus.

Some two weeks ago he made a longitudinal incision over the clavicle, and did a subperiosteal resection of the middle third of the bone. This portion of the bone was adherent to the subclavian vein, which he dissected free with a great deal of difficulty without puncturing the vein. A little spur of bone was also infringing upon the

lower cord of the brachial plexus. The operation was completed in about twenty minutes. Whereas, before the operation, the hand and arm were quite blue and swollen, afterward the hand had regained its natural color, and since the operation the patient has been relieved of all pain.

LOCATION OF SEPARATED ENDS OF SPHINCTER ANI MUSCLE BY ELECTRICAL CURRENT. UNION OF MUSCLE FIBRES BY SUTURE.

DR. A. T. BRISTOW said that two months ago he was shown a man who, after an unfortunate operation for fistula in ano, had complete incontinence of feces. He had been operated on by another surgeon for repair of the sphincter, but the ends of the sphincter muscles were buried in scar tissue and were not found and the result of the operation was not good. He then proceeded to turn back a skin flap downward from the anal region so as to expose the whole area occupied by the sphincter muscle, and then took an electrode with small surface, the other being in the abdomen, and with a moderate current, and searched the denuded area with the small electrode until he got distinct muscular contractions. By this means he identified the ends of divided muscle and united them in the usual manner. The result was a complete cure of the condition for which he operated. He could not have gotten so good a result, unless he had been able to identify the sphincter; and as the ends of it were buried in cicatricial tissue, it was impossible to locate the muscle fibers in any other way. The reaction of the muscular fibers gave a completed clue to the ends of which he was in search.

DOUBLE EXTIRPATION OF EXTERNAL CAROTIDS.

DR. A. T. BRISTOW presented a case of double extirpation of the external carotids for an inoperable carcinoma of the lower jaw. The interesting point about this case is the family history: Mother died of carcinoma of jaw at age of 48. Growth first noticed in August, 1902; was operated on by curetting twice before admission to hospital, but tumor increased in size, and when seen it was inoperable so far as the removal of the growth was concerned. It was therefore determined to excise the external carotids and submit the patient to the X-ray treatment afterward. The two operations were done separately, the second one a week following the first, and 30 minims of paraffine mixture introduced into the

termination of the external carotid on either side. A very curious symptom developed at the first injection. The speaker injected $1\frac{1}{2}$ drachms, following which he had this curious symptom, which he had never before observed in any of these carotid cases, namely a complete anesthesia of the side of the face, and also a good deal of difficulty in swallowing.

At the second operation he did not use so much paraffine. In Dawbarn's opinion the safest quantity to use is 30 minims. A curious fact that Dr. Bristow has always noticed in all his carotid work has been this—when the stump of the external carotid is passed underneath the hypoglossal nerve and digastric tendon, the patient's respiration always slows down, and sometimes to a very disagreeable extent. In this case the patient, who was doing perfectly well before, stopped breathing as the artery was pulled up underneath the hypoglossal nerve, and made to dive under the tendon, and it was some minutes before his respiration was restored. The day following the operation there were no unpleasant after effects, however, as he was sitting up in bed, and four days after he was able to walk.

When these operations are done bloodlessly, there is not a great deal of shock attending them, which can be ascribed to hemorrhage, nevertheless some of these patients die shortly after the operation apparently from respiratory failure. Dr. Bristow believes that the reason for the respiratory failure is, that when the vessel is pulled up beneath the nerve tendon, traction is made on the superior laryngeal nerve, which crosses beneath just about where the hypoglossal nerve crosses above the vessel. When the latter is pulled up you make some traction on the superior laryngeal, and get a pneumogastric inhibition, which affects the respiration. He had seen a patient doing perfectly well die instantly from such inhibition when a Trendelenburg canula was inserted into the trachea and the rubber bag inflated. The anesthetist tells him that he always notices the respirations slow down and become shallow at this point in the operation.

The tumor has shrunk up, the remaining sinus is quite small, and so far the result is pleasing. What the final outcome will be no one can tell. The speaker had one case go over a year, where there was an entirely inoperable carcinoma which arose from the antrum. He has two cases at the hospital now, both doing well, one a huge carcinoma of the lip, involving the jaw, in which he extirpated both carotids and used the X-ray. These also have done well.

DISCUSSION.

DR. M. FIGUIERA said that he had performed Dr. Dawbarn's operation in four cases so far.

In these cases after dividing the external carotid, he dissects the artery up, and ligates the branches. He passes the thread with which the artery is ligated under the nerve and under the muscle, and gets it back that way. He never noticed any interference with respiration or any symptoms of collapse when that is done.

As to the results of the operation, he was very much disappointed. One case was a sarcoma of the superior maxilla, in which he removed the bone, and when the tumor recurred he removed both arteries on both sides, and in both cases the results were very discouraging.

DR. L. W. PEARSON said that he had operated upon the patient with carcinoma of the jaw, which Dr. Bristow presented. At the time he saw him there was a very large fungating mass, full of pus, very foul-smelling and very painful. The man was suffering a good deal, and he was called to see him. The operation was very brief and consisted in doing very little. It was to curette away all the fungating material. This was done to relieve the patient of his discomfort and the bad odor. The patient had been treated by the X-ray for some months and the disease, instead of ameliorating, tended to advance.

DR. G. R. FOWLER said that he had not seen this inhibition of the respiratory act during the operation of extirpation of the carotid in the six cases in which he done the operation. In two, the dragging upon the hypoglossal nerve by a retractor in the hands of an assistant, lifting it up so as to pass the vessel beneath it, was such as to give rise to some interference with the motions of the tongue for several weeks afterward in one case, and only for a few days in another. Of course, this amount of dragging is unnecessary and unjustifiable, but sometimes a retractor in the hands of an assistant will do as much harm as good. Certainly in these cases the traction was harmful to the hypoglossal nerve and produced this effect. It is reasonable to suppose, if Dr. Bristow's theory is correct, that, by dragging on the laryngeal, inhibition through the pneumogastric is produced, sufficient to cause this effect, but he has never observed anything of the kind.

As to the results: The patient exhibited by Dr. Bristow certainly is an excellent example of the thorough efficacy of the Dawbarn operation in restraining growths of this character, and even in lessening them, or else it is an argument in favor

of the employment of the X-rays. That now is more than a month ago, so that one perhaps is not in a position to accurately judge as to whether the good results are due to the X-ray treatment or the extirpation of the carotids.

The speaker was reminded by the appearance of this man of one case in which he extirpated both external carotids for the purpose of restraining the growth of malignant disease—a carcinoma—as shown by the pathological examination. In this case there was considerable edema of the face, the eyelid was greatly swollen at the time, and at first glance it would appear as if the case was absolutely hopeless, and so it seemed, but after the extirpation, the edema quite rapidly disappeared, and two weeks from the time of operation (both carotids were extirpated at one sitting in this case) the disease was not as large as a silver half dollar on the face. The upper jaw was involved, so much so that after the end of the month, when the circulation had been sufficiently established to give some guarantee that the reproductive process was going on, to remove the entire upper jaw and that portion of the cheek involved in the disease—and that was done. The operation was as bloodless as could be under the circumstances, and the patient made a good recovery from the operation itself. After waiting another month until the sliding flap had partially or entirely healed, he proceeded to make the effort to close the opening by a plastic operation, taking a flap from his shoulder. Unfortunately at this time the patient developed lobar pneumonia and died, so it could not be known whether an attempt at a plastic operation in filling in the gap after the blood supply has been so diminished would be successful or not. He was encouraged to believe so, however, as the edges around the skin united by first intention as readily as if the blood supply had not been interfered with.

The question has been raised as to the advisability of doing both operations at the same sitting. The patient being in good condition, it would seem as if that would be the ideal way of dealing with the case, but each case must be judged on its own merits.

Dr. Fowler made these remarks to introduce the statement that one of the cases in which he did the operation in two sittings died an hour after the second operation. In that case 30 minims of a 1 to 8 paraffine and white vaseline mixture were injected into the temporal terminal of the external carotid, or at the termination of the external carotid, as Dr. Bristow called it, and this quantity, 30 minims, was not exceeded. It

was injected from a syringe, which held exactly 30 minims. Unfortunately a post mortem could not be obtained in that case, and the speaker was surprised, while still in the operating room engaged in other work, to receive a message that the patient had suddenly expired.

Another case in which he did the operation on both sides at one sitting, a man of 70 odd, died on the fourth day after the operation, and in this case also the death was entirely unexpected. Just what symptoms occurred in connection with the death could not be ascertained, he died so quickly. In this case the friends absolutely refused to permit the head to be opened.

It was unfortunate both cases should have been buried without autopsy, because it was apparent from the suddenness of death, that something had occurred from the injection of the paraffine. The lesson to be learned is, further study should be made as to justifiable injection, and whether some means cannot be reached to be sure that the injection will go where you want it, and not a point where it will be dangerous to encroach upon.

DR. ARTHUR H. BOGART said that he had seen three cases of ligation of the external carotid for malignant disease. One case he did himself on a man about forty years of age with a malignant growth involving the upper jaw. The operation was done on one side only. He remained in the hospital for about four weeks after the operation, and certainly was very much improved inasmuch as his pain was absolutely relieved. Previous to the operation he suffered severe pain all the time, requiring morphia to make him comfortable. There was no apparent change in the size of the growth after the operation. He wanted to operate on the other side, but the patient declined. This patient had been treated with the X-rays for about a month without any apparent benefit.

The second case was a man with a large growth on the side of the face which was operated upon by Dr. J. B. Bogart, the vessel being excised and injected with the paraffine solution. This patient never did well and died at the end of forty-eight hours. He had very marked difficulty in breathing after the operation, and it was thought that the trouble was due to an injury to the recurrent laryngeal nerve.

The third case was one of carcinoma of the upper jaw, which came to the County Hospital for X-ray treatment. He was advised against it as the case was an advanced one, and was told that if anything was done ligation and excision of the vessel was the operation indicated. He declined and the X-rays were tried for four weeks

without benefit. He was then operated on by Dr. J. B. Bogart in the usual way. To the speaker's knowledge he was still alive at least two months after the operation.

He did not remember having seen any interference with the breathing in these cases. In the first case there was some difficulty, but it was before the operation had been begun, so that it was not due to interference with the pneumogastric nerve.

DR. A. T. BRISTOW said that there is certainly something about this operation which is very different from all other operations on the neck. The dissection, while a little difficult, and occasionally very difficult, particularly when there are agglutinated glands in relation with the site of operation, is nevertheless as extensive as the dissection we frequently make in operations for tubercular glands of the neck. It is not infrequent in these cases to have the entire internal jugular exposed; not infrequently we divide the sterno-mastoid muscle; yet no one ever thinks of losing a patient afterward; and yet a dissection which is not half the extent of these incisions of tubercular glands, for some reason or other not infrequently, is fatal, and this occurs in uninjected cases. A patient which he had lost at the County Hospital died in the same manner as the case described by Dr. Fowler, although he received no injection whatever. Before Dawbarn commenced these injections a number of his patients died in this inexplicable manner, either an hour or two after the operation or within a few hours afterward, and rather suddenly.

An external carotid excision ought not to lose the patient an ounce of blood. Just before the posterior auricular artery is reached there is a large vein which crosses the wound high up above the angle of the jaw, which, if wounded, is apt to give a troublesome hemorrhage before secured. The hemorrhage has never been a serious factor in any of the speaker's operations. As for the injection, 30 minims of the vaseline-paraffine mixture would certainly not reach the circle of Willis, which is the only point at which fatal embolism might occur. The paraffine-vaseline mixture solidifies very quickly, too, so that it could not be washed onward readily, therefore this does not seem to be the explanation of these deaths.

As to the benefit of these operations: All operations done for tumors of the lower jaw are more hopeful than those in the upper jaw, but the cases of sarcoma and carcinoma of the antrum, for which most of these operations on the upper jaw are done, are followed by one gratifying result to the patient, namely, the pain stops at

once. The pain of these sarcomas of the antrum is very intense from the pressure of the growth, and the moment you extirpate the artery on the affected side, immediately the pain ceases. You can not expect good results at all from any of these carotid operations unless you do the second operation with reasonable promptness after the first. Anastomotic circulation is established so rapidly. The speaker's custom is not to let more than ten days go by until he does the operation on the other side.

BULLET DISLODGED FROM LATERAL PHARYNGEAL
WALL AND EXPECTORATED THREE MONTHS
AFTER RECEIPT OF SELF-INFLICTED
WOUND IN RIGHT EAR.

DR. G. R. FOWLER exhibited a bullet that was dislodged from the lateral pharyngeal wall of a patient who entered the Methodist Episcopal Hospital about three months ago suffering from a revolver shot wound of the right ear inflicted with suicidal intent.

At the time of his admission no trace of the bullet was found. After careful cleansing of the parts he was put to bed and practically nothing further done for him until he was able to be taken to the X-ray room, when attempts were made to locate the missile by the aid of the X-ray. This proved to be unsuccessful. A little while thereafter he was able to be up and about, and was placed in charge of the Throat and Ear Department of the Out Patient Department. To-day Dr. Sturges presents us with this bullet, which the patient spat out. He said that for a little while before he could feel the projection of the bullet with his finger in the left side of his throat. That the bullet entered on the right side is certain. Of course, it is entirely speculation as to the course pursued by the bullet. At the time of examination of the patient, it was believed it had turned into the bony auditory canal and had then disappeared.

In a similar case six years ago an attempt was made to remove a bullet which was located at this point. The attempt was successful as far as the removal of the bullet was concerned. A copious flow of arterial blood, evidently from the internal carotid, followed the removal of the bullet, and it was with considerable difficulty the speaker had succeeded in arresting the hemorrhage with vigorous packing. That man subsequently died, and an autopsy showed that the bone had been entered in the carotid canal and the vessel had been torn at that point; so with that ex-

perience no protracted effort was made to locate the bullet, since it was deemed unsafe to attempt its removal at that time. That it passed through the bony canal through the middle ear and finally found its way along the track of the Eustachian tube is more than probable. There are some marks upon it, showing it dragged itself pretty forcibly through the bony structure, as one side of the bullet is flattened with a considerable groove upon it, obliquely placed—not the groove which comes in the passage through the rifling of the weapon itself. In fact, these small bore weapons are such as to leave but a trifling mark upon the bullet.

DISCUSSION.

DR. M. FIGUERA said that if he knew that a patient had a bullet pressing on the internal carotid artery and wounding it, he would consider that an indication for removal of that bullet, because mischief would come from letting it stay there.

THE BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, MAY 7, 1903.

AMPUTATION AT THE HIP JOINT FOR SARCOMA OF FEMUR; PERSONAL STATISTICS FOR THIS OPERATION DURING LAST FIFTEEN YEARS.

DR. L. S. PILCHER presented a case of hip joint amputation and gave the history and also data with reference to other cases of hip joint amputation performed by him.

This patient is a woman thirty years of age, who was admitted in April to the Methodist Episcopal Hospital with a large fusiform tumor occupying the lower two-thirds of the thigh. There had been constant, slow development of the disease during a period of six years. During the last year she suffered severe pain in the limb, and had experienced a gradual loss of flesh and diminution of strength. When she was admitted to the hospital she was emaciated and pallid, the hemoglobin test was 48 only, and her weight was 106 pounds.

On the 8th of April, 1903, amputation at the hip joint was done. Preliminary hemostasis by pins, and rubber tube tourniquet was secured, and then by means of a racquet-shaped incision the soft tissues were divided, the attachment of the tissues to the femur were dissected away, the head of the femur was disarticulated, the blood vessels were tied, the deep structures were brought into

position and sutured together with chromic gut. A tube and gauze drainage was introduced into the depth of the acetabular cavity. Upon the removal of the rubber tube the hemostasis was found to be complete and the ordinary protective dressings were applied. Very little, if any shock was evinced by the patient as a result of the operation. She reacted well. She has since made an uncomplicated recovery, as is evidenced by her present condition, four weeks after the operation.

The tumor, which had sprung from the periosteum, was one of mixed spindle and round cell sarcoma. This is the sixth case of hip joint amputation which has been under his care since the opening of the Methodist Episcopal Hospital, and a few data with reference to the previous cases may illustrate some points connected with hip joint amputation.

Case I. 1891. Tuberculosis of Hip.—A man, forty-nine years of age, was admitted to the Methodist Episcopal Hospital January 23, 1891, with tuberculosis of the right hip, with abscess and sinuses, for which excision of head and part of neck of femur was done. The diseased acetabulum was curetted and the sinus tracts laid open and curetted. The disease continued to spread, and a progressive general septic state persisted. After three months of treatment without benefit, it was determined to remove the limb. For this purpose, April 24, 1891, was made an incision just above great trochanter, and carried downward and across to the inner side so as to make a long flap from the inner side of the thigh. The vessels were caught and tied, as cut. Head of bone and ligaments being gone, disarticulation was easily accomplished. Patient suffered much shock and died on the following day.

Case II. 1893. Sarcoma of Thigh.—A man, aged thirty-three years, was admitted in March, 1892, to the Methodist Episcopal Hospital with a large, firm, movable tumor five inches in diameter, in the soft tissues on the inner side of right thigh, occupying its middle and upper thirds. Inguinal glands not involved. March 23rd it was removed and proved to be a completely encapsulated tumor connected with the periosteum of the femur, which the pathologist pronounced to be a round and spindle-celled sarcoma.

Eighteen months later he was readmitted with a recurrent growth, which had first been noted six months before this time, and which now extended on inner side of thigh from two inches above the knee to Poupart's ligament.

October 13, 1893, amputation at the hip was done. The femoral vessels were first ligated just

below Poupart's ligament. Long external flap was made, the femur sawed through just below the trochanter minor and its remaining portion disarticulated; the soft tissues on the inner side of thigh were cut through close to the pelvis to get well above the tumor. The man left the table in good condition, but steadily sank, and died on the morning following the operation.

Case III. Sarcoma of Thigh.—A woman, nineteen years of age, was admitted to the Methodist Episcopal Hospital in December, 1901, who, for one year before admission had noticed some swelling of her left thigh. It was hard and not painful and had slowly increased in size. Five weeks before admission it had become painful. At time of admission there was a firm fusiform tumor involving front of thigh throughout its middle and upper thirds. Red blood cells, 3,700,000; leucocytes, 16,000; hemoglobin index decreased.

December 12, 1901, amputation at hip joint was done. Hemorrhage was controlled by use of Wyeth's pins and elastic bandage tourniquet. A long posterior flap was made, the femur was freed and the head of the bone dislocated out of the acetabular cavity. The hemostasis was perfect.

The patient rallied well. Wound healing was satisfactory, and on January 30, 1902, six weeks later, patient was discharged. General condition excellent.

Pathological Report.—Small spindle-celled sarcoma. Growth seemed to be entirely encapsulated within the muscular structures, and had no bony connections. Nine months later (September, 1902), patient died of general sarcomatous infiltration of lungs, scalp, etc.

Case IV. Tuberculosis of Hip.—F. D., male, single. Patient was operated on a number of years previous to the present trouble for tuberculosis of the knee joint. Resection was done, and result was very satisfactory. Later developed hip joint disease, which was treated for about two years with extension. Later abscess formation and sinuses developed, on account of which amputation at the hip was done.

Uncomplicated recovery. Returned home. Later developed pulmonary tuberculosis, from which he died.

Case V. Tuberculosis of Hip.—A man, aged fifty-three years, was admitted to the Methodist Episcopal Hospital in October, 1902, with an open tuberculous sinus on outer side of left hip. Injection of sinuses with iodoform emulsion, etc., for one month; some improvement resulted and he was referred to the dispensary for further dressing.

January 15, 1903, he returned to the hospital in a worse condition, with multiple sinuses in the groin and about the hip. January 17th, the carious head of the femur was excised and an imperfect attempt to dissect out the sinuses made.

Patient did not improve. Continued to grow septic and to lose ground. After three months more of ineffective treatment it was determined to remove the limb at the hip, which was done April 8, 1903. The external iliac vessels were ligated about one and one-half inch above Poupart's ligament. Circular incision. Head of bone being gone, disarticulation was easily accomplished. Much oozing from all cut surfaces. All diseased tissue cut away. Drainage with gauze and tube. Patient suffered considerable shock, but reacted fairly well until third day, when he sank rapidly and on April 12, died.

Case VI. Sarcoma of Thigh.—A woman aged 30 years was admitted April, 1903, to the Methodist Episcopal Hospital with a large fusiform tumor occupying the lower two-thirds of the thigh. There was a history with a slow development of the disease during a period of six years. Pain for past year. Gradual loss of flesh and strength. When admitted the patient was emaciated and pale. Weight, 106 pounds. Hemoglobin, 48 per cent.

Amputation, April 8th, 1903. Amputation at the hip joint was done. Hemostasis by Wyeth's pins and rubber tube tourniquet. Racket shaped incision. Soft tissues developed. Attachments severed and femur disarticulated. Deep structures sutured with chromic gut. Tube and gauze drainage. Hemostasis perfect.

Patient reacted well and has made an uncomplicated recovery.

Pathological Report.—Tumor adherent to bone. Mixed spindle and round-celled sarcoma.

DR. PILCHER said that these six cases, thus outlined, represented the total of his experience with this procedure. Three have been done for sarcoma of the thigh; three for inveterate tuberculosis. Two cases of sarcoma of the thigh recovered, one died. One case of tuberculosis recovered and two died. The condition which determined the immediate result evidently has been the possibility of securing complete hemostasis. Those cases, in which it has been possible so to manage the technique as to save the blood, have recovered. Those in which the local condition was such as to make a considerable loss of blood inevitable have died as the immediate result of the operation.

PATHOLOGICAL DISLOCATION OF THE KNEE.

DR. L. S. PILCHER presented a young man who, in 1891, accidentally sustained a wound of the right knee joint by hatchet. Suppuration followed in the joint. It was in a distant part of the country where the accident occurred, where the case was carried on to its conclusion. After a long period of septic disorganization of the joint and severe illness he gradually recovered, and with the recovery a destruction of the knee joint and a recession of the upper end of the bones of the leg behind the lower end of the femur followed.

Now, at this late date, he presents himself for examination as to the question, if there is any possible interference which would improve the condition of the leg. There is absolute fixation at the joint, the projecting femoral condyles prominently overhanging the anterior surface of the bones of the leg. The fusing of the bony surfaces together posteriorly seems to be very evident. A moderate degree of posterior displacement of the upper end of the bones of the leg in old cases of any knee-joint disease is, of course, not unusual, but so marked a degree of displacement as is present in this case is rare. There is an apparent shortening of the limb of about six inches from the floor as he stands.

DR. PILCHER said that the one object of the presentation of this case was to get a criticism of the conclusion he had arrived at in his own mind.

It seemed to him, that excepting from a cosmetic point of view, the condition that had been reached by the process of Nature, blind as they were in this case, were as good as could be expected; that he had a limb with a certain degree of angle, which made it a much more useful limb, a much less troublesome limb than if it was a straight limb; that inasmuch as there was no active disease of any kind, and that there was a firm ankylosis and it was fairly useful as it was, his judgment in the case was, that no surgical interference should be attempted. Of course, it would be perfectly possible to excise the end of the femur, and after having done that to bring the tibia around underneath the femur and get a straight limb in an ankylosed position. It would be straighter than now, but would not be as convenient and useful a limb as the one he now has, and unless some better conclusion is suggested—that was the recommendation he was going to give—not to have anything done for it.

SUCCESSFUL OPERATION FOR BRAIN TUMOR.

DR. M. FIGUEIRA presented a patient from whom he had removed a tumor of the posterior

and superior part of the parietal lobe. It was removed two months ago. The man recovered remarkably well. He was paralyzed at the time and unable to walk. He had some affection of one of his eyes. He has recovered so well that he is now able to walk, and is improving gradually every day.

Of course, all brain tumors are not amenable to surgical operation. From the position, pressure, size and relations about one-half of all tumors of the brain are not amenable to surgical operation. Then, again, of those cases that are amenable to operation about 75 per cent. can not positively be located; and in Starr's tables, in those cases operated on from the localizing symptoms, the tumors were not found. Then, again, from the number of those cases that are operated on, the number of recoveries is small indeed—75 per cent. is supposed to be the number of deaths, according to late statistics.

The case presented was the case of a man about 49 years old with a clear history, so far as carcinoma or specific disease is concerned, and he was never sick nor had any trouble up to eight years ago, when in the pursuit of his business he was knocked down by a trolley car and received an injury to his head about the place where the tumor developed afterward. He said the injury was not severe enough to make him unconscious or sick. It left a scar and dent in the bone, but there was no fracture, as was proven afterwards when he was operated on. Outside of this he did not have any other injury.

About six months ago he began to develop brain symptoms in the form of dizziness and headache, and this went on for several weeks, when he felt a sensation in the calf of his leg as a numbness, and this numbness gradually extended to his feet; along with it he began to lose power, and in a few weeks or a month afterwards the same feeling came on in his hand—numbness at first and then loss of power. It extended to the arm and in time to the face. He had slight defect of sight of one eye—at least he could not see as well with one eye as with the other. He had marked anesthesia and the diagnosis of brain tumor was made. He was admitted to the hospital, and there the diagnosis was confirmed, and the examination that was made and the results that were obtained will be related by Dr. Onuf.

DR. B. ONUF presented the report of the neurological examination at to-day's examination. The patient can now read fluently and evidently with understanding. He has not had any more attacks of disturbance of speech. The tactile sense in the affected extremities has improved. He uses his

right hand quite well now, which is evidenced by the fact that he can write with the right hand and with no impediment, apparently. He has still a marked disturbance of gait, but the sensation in the lower extremities is better than it has been, and this is quite remarkable in view of the situation and extent of femurs removed.

The tumor was situated in the upper parietal lobule. It ran almost to Rolando's fissure. The mass was removed as far as the median fissure of the brain, and it is remarkable that the patient is still able to move his toes and ankle and foot. The toes he moves very little, but the foot quite well. That so much function was still left may be explained by the fact that the motor centers from here part over to the median side of the hemisphere.

Another remarkable feature is this, that the patient has no hemianopsia. This seems almost incredible. The fibres from the optic thalamus to the cuneus are those which convey the visual fibres to the visual center, and it seems almost incredible that these fibers have not been cut through by the lesion of the operation. Although the mass was three-quarters of an inch deep, it evidently did not reach deep enough to affect these fibres, because the patient has now no hemianopsia. The visual fields are not contracted at all.

As regards function, this result, considering the large amount of brain removed, is as excellent as can be expected from any brain case.

MULTIPLE TUBERCULAR STRICTURES OF THE INTESTINE.

DR. W. C. WOOD reported the case of Miss S., 23 years old, stenographer, sent to the Brooklyn Hospital on February 22, 1903. Her physician said that her health had been good until August, 1902, when she developed an attack of abdominal pain chiefly about the umbilicus. This lasted two days accompanied by some nausea and vomiting. A second attack came on two weeks afterward with the pain located in the right iliac fossa. Since then there had been many attacks of abdominal pain accompanied by nausea and vomiting, lasting one or two days, with abdominal tenderness chiefly on the right side of the abdomen. Between the attacks the intervals had varied from a few days to a month, during which periods there had been diarrhea and loss of appetite. As her general health was failing and the attacks becoming more frequent, her physician advised opera-

tion, thinking it probable that the case was one of appendicitis.

On admission there were no local or general symptoms, it being during an interval between her attacks. The history alone was the reason for operation.

The abdomen was opened over the right iliac fossa by an intramuscular incision, and within six inches of the ileo-cecal valve a tight stricture of the small intestine was found. It was annular in form, about one-half inch broad and included the thickness of the intestinal wall, which was covered with a few red miliary tubercles. There were a few enlarged mesentery glands of soft consistency and a very moderate amount of local adhesive peritonitis. The rest of the abdominal cavity, as far as inspected, seemed normal. The stricture was resected and a Murphy button used in closing the divided gut. The calibre of the opening of the stricture was about one-third inch in diameter.

The pathologist's report (Dr. Van Cott) was that sections of the intestinal wall and mesenteric glands removed showed presence of tubercles, many undergoing degeneration. There was a small drain inserted in the wound.

The patient did fairly well for six weeks, except that if the food was increased to any extent, abdominal pain developed. This seemed due to the button, which had not been passed. On the forty-second day, after a more severe attack than usual, a little fecal matter appeared through the small sinus, and an X-ray print showed the button in situ. On the fiftieth day a still more severe attack of pain developed, with vomiting, prostration and a temperature of 101.5° and pulse of 110. On the fifty-third day after the subsidence of the acute symptoms, Dr. Wood operated a second time, expecting to remove an offending button. He was surprised to find that the button had passed on, but that a tight stricture had developed some six inches above the point where the first one had been removed, and that a third one was in the process of development between the point of the first stricture and the ileo-cecal valve. Also that the disease of the mesenteric glands had greatly advanced.

He removed both strictures and joined the divided ends with the collapsable Harrington ring. The patient died with extremely rapid pulse about forty-eight hours after operation.

A full autopsy was not permitted. The button was found in the rectum, it probably having passed the third stricture during the acute attack two days before operation.

PERSISTENT SINUS FOLLOWING NEPHRECTOMY.

DR. W. C. WOOD reported the case of Miss T., 35 years of age, whose right kidney had been removed two years ago by a Chicago surgeon. Her family state that the kidney was tubercular. A persistent sinus had remained since, although several times curetted and treated continually in a sanitarium. The discharge from the sinus was slight. No urine had been noted. A probe could be inserted about two inches.

On freely enlarging the sinus, an open ureter was recognized, and a long probe could be passed toward the bladder. The uterine seemed healthy. It was, therefore, not removed, but slit open for about two inches, and its mucus lining destroyed with the thermo cautery, while a half drachm of pure carbolic acid was injected down the canal.

The wound has since granulated readily from the bottom.

PAPER: HEAD INJURIES; THEIR DIAGNOSIS.

BY ALEXANDER RAE, A.B., M.D.

Discussion.

DR. L. S. PILCHER said that there was one point raised in Dr. Rae's paper that had often been the subject of thought with him in his work, and that is the significance and the propriety of the continued use of the term "Concussion of the Brain." As it has ordinarily been used and, as he thought, the reader limited in the paper this evening, the term "concussion" of the brain is an indefinite term, that signifies simply some injury to the brain, the symptoms of which are evanescent.

It has seemed to him always that that was an unscientific term, and one which possibly had no satisfactory basis in pathology. All these cases of evanescent symptoms are probably due to damage to the brain tissue, but the damage is not severe enough, or is not located at centres that are important enough to determine lasting symptoms, and it is not a condition that can properly be given a term that will distinguish it from the same conditions placed elsewhere in the brain, which do produce more permanent symptoms. As far as the tissue of the brain is concerned, as far as the pathological changes incident to the injury are concerned, they are the same in conditions, which we call concussion, as in conditions which are spoken of as contusion or compression in other cases.

It seems that possibly there is really no sound reason for the continued use at the present day of the term "concussion" of the brain. "Concus-

sion" is shaking, a mere shaking of the tissue. If some lesion is not produced it does not produce a symptom. Every step we take, every motion of the body is accompanied with a certain amount of shaking, of molecular motion in the tissues, and unless some damage is produced by this, there is no result. If the damages are less in their extent, we are accustomed to class them in other parts of the body under the general term of "Contusion." A contusion may be slight or severe, nevertheless if it is a laceration of the tissue, unaccompanied with external wound, we speak of it as a contusion. Why not use the same term in speaking of cerebral tissue as we do in speaking of muscular tissue, or in speaking of nervous tissue in other parts of the body, *i.e.*, a slight cerebral contusion with evanescent symptoms, a severe contusion with symptoms of hemorrhage and compression, with extensive laceration and destruction to important centers and all that sort of thing.

He would like to suggest an amendment to our ordinary surgical nomenclature in these cases by the dropping out of use of the term "Concussion," and of speaking of cerebral contusion in its various degrees.

DR. J. P. WARBASSE said that the term "Concussion of the Brain" is retained as a surgical designation, because it is applied to a peculiar form of contusion.

The blood vessels of the brain are less firmly supported than the blood vessels in other parts of the body, and are more sensitive to mechanical irritation, as far as their vasomotor changes go; we have in that the origin and necessity for this term "Concussion." A contusion of the brain, by virtue of its mechanical irritation or shock, causes a vasomotor contraction, a stimulation of the contractile muscles of the vessels, and consequently a diminution in the calibre of the blood vessels, and hence an anemia of the brain, producing unconsciousness or other cerebral symptoms. A more severe contusion may cause vasomotor paralysis and dilatation of the cerebral vessels. Now, in any other part of the body, even if there were such a vasomotor change, it would not give rise to any symptoms that we would be able to discover from our outward observation, and it is for that reason that the term "Concussion" of the brain is necessary to describe a contusion, affecting tissues in which the slightest circulatory disturbance gives rise to the most pronounced and evident constitutional manifestations. A vasomotor disturbance in the vessels of a muscle or in connective tissue that would give no symptoms at all if occurring in the brain,

would be associated with profound constitutional disturbances. This is the reason why it is best to retain the word "Concussion," because it describes a peculiar contusion.

DR. M. FIGUEIRA said that the terms Concussion and Contusion are used more in a clinical than in a pathological sense. It is a fact that clinically the picture of concussion does exist, *e.g.*, a man receives a blow in the head, is knocked down, becomes unconscious, his pulse is small, his respiration is not changed much, his face is pale, and he remains in that condition for a while; then the color comes to his face, his pulse gets full, he vomits, and in a few hours is well. Now, there is no contusion that we are acquainted with, surgically, that presents clinically this picture. If you fall down and bruise your elbow, if you receive a blow from a stick, if you contuse or bruise your muscles enough to interfere with function, it is not such an evanescent thing; but in the brain, inside of a few hours, from this picture of unconsciousness, paleness and suspension of brain function all symptoms disappear and the man returns to his nominal condition, and in a few hours has returned to his labor, and, may be, we never hear about it any more.

Bruises or contusions in other parts are more permanent. They remain for days. There are lesions there of the blood vessels and of the parts that gradually pass off. It has been experimentally demonstrated that in cases of "Concussion" there are lesions in the form of capillary hemorrhages in the substance of the brain. These are severe forms that probably will have lasting symptoms, as such lesions cannot pass off in a few hours. These are cases of bruises of the brain; but there are other minor forms in which the symptoms disappear so soon that bruising of the brain substance could not have taken place. We must think and remember that the brain substance is a peculiar substance. It is a material substance that has the power of thought and sensation, and disarrangement of its cells and circulation that in a few hours may readjust itself without material lesion corresponding to a bruise, so that clinically, and even pathologically, the term concussion is one that is warranted as representing a clinical picture that has been recognized and that we see every day, and it does not seem to me a justifiable conclusion that this a lesion of the brain similar to a bruise.

DR. A. T. BRISTOW said that the general tendency nowadays with reference to this question of Concussion is to throw out the term "Concussion" as a pathological entity altogether, and to consider all injuries of the brain which produce

unconsciousness, temporary or lasting for a longer period of time, to be the results of slight changes in the brain substance, either part or in whole. It occurred to him as he listened to the Chairman that it was possible such cases as were described, of more or less evanescent unconsciousness, with vomiting and cerebral symptoms of that sort, may be due to a change in the pressure on the brain—a sudden change in the cerebro-spinal fluid to the ventricles. The brain is a little over 90 per cent. fluid, and it is quite conceivable that a shock of the nature described would possibly drive the cerebro-spinal fluid from ventricles into the Aqueduct of Sylvius and into the central canal of the cord, so that there would be a diminution of the pressure in one part of the spinal axis and an increase of pressure in another part. It seems these cases may be accounted for in that way—that would account for the vomiting and fainting.

He had had an opportunity to review almost all the important surgeries published in the last five years through the courtesy of the Editor of the *Annals of Surgery*, and he had been much interested at the attitude which they all seemed to take on this subject; and it is decidedly on the line of Dr. Pilcher's remarks. In other words, the tendency is to throw out the term "Concussion" as a pathological entity, and instead to adopt the term "Contusion," the degree of contusion determining altogether the violence of the symptoms. We can have a contusion without much laceration, or we may possibly have the vessels in the arachnoid ruptured with slight hemorrhage, or we can have a meningeal hemorrhage with atetoid contraction of the fingers, the peculiar characteristic flexing of all major joints. All these may be present as demonstrating the existence of a contusion which is very severe and which has resulted in laceration.

DR. A. RAE said in closing that the technical nomenclature of the art of surgery properly includes all terms which serve to define different abnormal conditions. A competent definition of any condition is such a description of it as serves to distinguish it from all others.

In order, therefore, that any term may have a permanent place in the surgical vocabulary, it should suggest a conception which is different from that brought before the mind by any other surgical condition. The picture before the mind in concussion is that of a jarring of all the brain cells; each coming in contact with adjacent cells, but without disturbance of their anatomical relations; without altering their anatomical structure. Physically the cells remain unaltered.

The change is limited to a slowing of the blood current, in consequence of which the functional activity of the brain cells is lowered and some degree of unconsciousness, proportionate to the degree of inhibition, results.

The pathologic condition is an alteration in the physiologic activity of the brain cells; their integrity being in no other wise affected than by their being temporarily deprived of their normal blood supply. Recovery promptly follows restoration of the circulation.

There is no other factor to cause delay.

In contusion, on the other hand, the violence with which the cerebral cells are thrown against each other and against other intra-cranial tissues is sufficient to cause actual damage to the cells in portions of the brain.

Here alteration in circulation is present as in concussion, but in addition, the automatical structure and relations of the cells are altered, so that a certain amount of repair is essential before the cells are restored to their normal condition.

Here, too, are the dangers of inflammation and destruction of a portion of the injured tissue, which are absent in the simpler condition of concussion.

There is, therefore, a distinct difference between the conditions in concussion and contusion, which should be clearly before the mind, and to indicate this difference the use of both terms is essential.

Tautology, in nomenclature, is undesirable. To discard terms which are clearly significant of distinctly different conditions, is unwise.

PROGRESS IN OBSTETRICS AND GYNECOLOGY.

BY CHAS. JEWETT, M.D.,

AND

A. SCHAUF, M.D.

SIMULTANEOUS EXTRA AND INTRAUTERINE PREGNANCY.

Dr Geyl (*Zentralblatt für Gynäkologie*, No. 30) reports a case of the above in a primipara, thirty-five years of age. The patient was operated upon by laparotomy for extrauterine pregnancy and a four and a half months fetus extracted.

Considerable hemorrhage occurred prior to and during the operation. The placenta was found adherent to the right broad ligament and removed after ligating the broad ligament at the uterine and abdominal ends. The next day an intact ovum the size of an apple was expelled per vaginam

accompanied with a profuse hemorrhage. Tamponing was resorted to, but the patient died during an attack of syncope.

A CONTRIBUTION TO THE QUESTION OF TRUE AND FALSE EXTRAUTERINE PREGNANCY.

Dr. Karl Kober (*Zentralblatt für Gynäkologie*, No. 22) says Schambacher was compelled to exclude extrauterine pregnancy in four cases out of fourteen of retrouterine hematocele, while in his own investigations of seventy-five cases of hematocele by a very careful microscopic examination only twice was it impossible to find evidences of conception.

The general rule is that pelvic hematocele is produced by ectopic gestation. The histological findings are proof positive, although macroscopically no evidences of conception products may be discernible. It must, however, be borne in mind that histological examinations are often exceedingly difficult and that it is impossible to examine in series sections all the tissues encountered, so that a certain amount of luck is necessary in detecting the convincing conception products.

TWO CASES OF RECURRING TUBAL PREGNANCIES.

Dr. Karl Reifferscheid (*Zentralblatt für Gynäkologie*, No. 22) rates the frequency of recurring tubal pregnancy at from 5 to 6 per cent.

CASE I.—Patient twenty-five years of age. Abortion two years ago, complicated with peritonitis, which kept her in bed for five weeks. In the early part of June, 1899, she became ill with a right tubal pregnancy. Treatment was expectant for about three weeks, when the recurrence of severe pains necessitated operative interference. A laparotomy was performed and a tumor the size of a child's head was removed from the right side of the uterus, the adherent omentum was ligated, and adhesions were separated, while the left tube and ovary were freed from adhesions and permitted to remain. Patient recovered. An examination of the tumor showed it to be a tubal abortion in the third month.

June 20, 1901, two years later, the patient was again admitted to the hospital with the diagnosis of ruptured left tubal pregnancy. To avoid if possible a second laparotomy the tumor was aspirated per vaginam. In three days, however, the tumor had regained its former size and was as painful as before. A second laparotomy was performed and the tumor, the size of a child's head, was removed from the left side of the pelvis. It contained a tubal pregnancy in the second month. Patient recovered.

CASE 2.—Patient thirty-two years. Has had two normal spontaneous deliveries, the last one October 18, 1897; two abortions at two and three months respectively between the first and second pregnancies. Menses irregular, from two to seven weeks intervals, and lasting usually eight days. Last menses occurred October 7, 1902, which was lighter than usual. For the last two weeks she had complained of pain in the right inguinal region. An examination revealed a tumor the size of a hen's egg in the right side, which seemed to belong to the ovary. October 17, 1902, a laparotomy was performed and the right tube containing a six weeks' fetus removed. No adhesions. Patient recovered. March 13, 1903, patient returned to the clinic and said she had been well since the operation. Last menses occurred in the latter part of December, 1902. Eight days ago she developed symptoms of a ruptured tubal gestation with evidence of hemorrhage. Fainting and severe abdominal pains were present. Just prior to operation she went into collapse. Dulness was plainly discernible over the lower part of the abdomen. A laparotomy was performed; the abdomen was filled with clotted blood, the left tube having ruptured. It was ligated and removed. Patient was in collapse when removed from the table. Salt infusions were given and camphor injected hypodermically. Slowly the pulse returned, and a few hours later was regular at 120. Patient rapidly recovered.

In the first case the peritonitis following the abortion had probably produced adhesions and obstruction in the lumen of the tube which delayed or arrested the impregnated ovum in its passage to the uterus.

PROGRESS IN SURGERY.

BY GEORGE R. FOWLER, M.D.

Rostowzew. The Rôle of Ascarides in the Etiology of Appendicitis. *Bolnjitschnaja Gazeta Botkina, Zentralblatt für Chirurg.*, 1903, I, p. 11.

In a patient dead from erysipelas R. found an *Ascaris lumbricoides* in a normal appendix. In two other cases small specimens of *Oxyuris* were found. Of these cases, in one a normal appendix was found, and in the other adhesions were present. In pursuing his studies upon this subject out of 278 appendices, 108 contained fecal matter and therefore could contain the ova of intestinal parasites. During the ten years immediately preceding 1900, among 163 cases of appendicitis occurring

in the Obuchow Hospital in only three instances was there found *Botriocephalus* and *Ascaris lumbricoides*. As a result of these observations the author concludes that intestinal parasites take only a very small part as a direct etiological factor in appendicitis.

Eiselberg. Radical Treatment of Intestinal Invagination. *Langenbuk's Archives*. Vol. LXIX, Fasc. 1 and 2.

The author's experiences are based upon thirteen cases of invagination. Twelve of these were treated by total resection and one by first partial and then total elimination. Eleven of the cases were in adults and two in children. Ten out of the thirteen were cases of ileocolic invagination, and in six of these an abnormally long mesentery of the large intestine, particularly the cecum, and more or less of the muscularis with hyperemia and infiltration of the wall were found. These E. suggests as congenital conditions and operative as etiological factors in the occurrence of invagination.

The most important diagnostic symptoms are severe pain, usually vomiting, and altered, usually bloody stools; further, meteorism is present, and either a palpable tumor or a more or less pronounced feeling of resistance upon pressure with the palpating fingers. In acute cases the symptoms of ileus predominate.

Disinvagination was attempted twelve times after opening the abdomen, but was successful only five times. Even when successful, E. preferred to apply total resection, for the reason that in one instance he found a carcinoma of the sigmoid flexure, and in another a cicatricial stenosis of the small intestine. In a third case a tumor could not be excluded, and in still another the history was such that a recurrence was to be expected. The stand is taken by the author that resection of the entire invagination, followed by axial reunion, is the proper course to follow, as in the cases in which disinvagination is impossible.

The author insists that laparotomy is the only rational and justifiable procedure in all cases of invagination with symptoms of ileus, although in some cases in children, he adds, we may wait forty-eight hours. In hyperacute cases, occurring in very weak subjects, we shall have to be satisfied with disinvagination, supposing that it can be done, adding, for the above reasons, radical operation later on, when possible. Should disinvagination be impossible in this class of cases, resection should be at once resorted to, a temporary artificial anus being made.

Sahli. Surgical Treatment of Gastric Ulcer.

Korrespondenzblatt für Schweizer Aerzte, 1902, XII.

S. declares that operative treatment of gastric ulcer should be limited to cases of uncompensated anatomic stenosis of the pylorus due to cicatrix formation and adhesions. According to the author, it has not been demonstrated that gastro-enterostomy is to be recommended in cases of gastric hemorrhage. Life is only threatened in "foudroyant" hemorrhage, and the presence of this can scarcely constitute an indication, since, if this were assumed to be true, many unnecessary operations, if the author's view of the matter is the correct one, would be done.

Bommarito. (Palermo.) A New Operative Procedure for Radical Herniotomy of Inguinal Herniæ, *Cernia chir.*, 1902, VI. *Zentralblatt für chirurgie*, 1903, I, p. 13.

B. devised a modification of Bassini's radical operation for inguinal hernia, and applied the modification in a series of cases. The operation corresponds precisely with Bassini's in the first steps, including ligature and resection of the hernial sac. At this point Poupart's ligament is isolated, and the femoral ring exposed as much as possible, access being gained for the inner aperture of the femoral ring. Poupart's ligament is now divided obliquely from within outward, and the isolated spermatic cord placed into the femoral canal. The latter is closed again by accurately suturing the ligament above. The inguinal canal is then closed.

PROGRESS IN DERMATOLOGY.

BY J. MCF. WINFIELD, M.D.

F. v. Krzysztalowicz, in the *Monatschrift. f. prakt Derm.*, 1903, XXXVI-421, gives a careful study of a case of multiple neuro-fibroma cutis. He states that the disease begins early in life and is often congenital. Some cases seem to be hereditary. The tumors are multiple and are chiefly on the trunk. In size they vary; some are as small as a pea and others are as large as an adult's head. The small tumors are of a bluish color, the larger ones the color of the normal skin. Patches of pigment, small angiomas, are also observed. The patients are often of inferior intelligence, and show other signs of defects that are probably due to developmental disturbances.

Hartman in the *Arch. f. Derm. u. Syph.*, March, 1903, LXIV, p. 301, in an article entitled "On an Urticarial Skin Affection," describes seven cases of Urticaria Perstans. The prominent symptoms were itching and an excoriated papular

rash. The papules were in patches in sizes from a pea to a fifty-cent piece, indurated and of a reddish-blue color. In none of the seven cases were there any indication that the eruption had begun as wheals. The eruption was all over the body except the scalp, palms and soles. The pruritus preceded the eruption in some instances for several years. The itching generally began in a small spot, gradually spreading over the whole body. It differs from prurigo in that it affects the flexor surfaces and that the lesions are larger. A careful review of the literature, together with the histological findings, leads the author to conclude that the affection is a chronic pruritus and that the eruption is secondary, due to the mechanical irritation of scratching.

Morris and Dore in *The Practitioner*, April, 1903, p. 433, in a paper entitled "Light Treatment in Lupus and Other Diseases of the Skin," protests against the careless employment of the term "Light Treatment and Finsen Treatment." The term light treatment should be reserved for treatment with the chemical rays, viz., blue-violet and ultra-violet, and states that the X-ray should not be included. Concurring with other observers they conclude that the small lamps (Bang and Miller) are too superficial in their action to be of any great benefit. The authors think that better dermatological results can be obtained from the Finsen light or X-ray than by the high frequency currents.

Meneau, *Annals de Derm. de Syph.*, Feb., 1903, p. 97, in an exhaustive paper attempts to establish the identity of the different varieties of ichthyosis. He divides the fetal variety into three groups—first, grave or fatal; second, of moderate intensity, and third, slight or extrauterine in development. The author concludes that the histological characteristics of the varieties are so identical that the difference is only of degree and not of kind. A very important and valuable part of the paper is the complete bibliography.

The Mississippi Valley Medical Association at its 29th annual meeting held in Memphis, October 7-9, adopted resolutions making for the abolition of the toy pistol and other dangerous toys. The action was taken in view of the fact that more than 400 deaths occurred from tetanus as a result of wounds received during the 4th of July celebration of 1903. The Resolutions conclude with the following:

Open treatment of all wounds, however insignificant, in which from the nature or environment there is any risk of tetanus.

Immediate use of Tetanus Antitoxin in all cases of Fourth of July wounds, or wounds received in barnyards, gardens, or other places where tetanus infection is likely to occur.

As a forlorn hope, the injection of Tetanus Antitoxin after tetanus symptoms have appeared.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed **BROOKLYN MEDICAL JOURNAL**, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, NOVEMBER, 1903.

SOME RESULTS OF THE SANITARIUM TREATMENT OF TUBERCULOSIS.

At the International Conference on Hygiene held at Brussels in the early part of September this year, several important aspects of the utility of special hospitals for tuberculosis as affecting the public health of a community in which they are situated, were emphasized.

Dr. Newsholm, medical health officer for Brighton, one of the speakers, described the causes to which he attributes the greatly lessened mortality from tuberculosis in England, where of late years the death-rate from this disease has been reduced fifty per cent.

Among the causes to be considered are the general sanitary improvements, which have aided in raising the general standard of health. The cheaper price of food, which goes hand in hand with a lower death-rate, is likewise indirectly an important factor. The intimate relationship between the high price of wheat and mortality from consumption is, of course, traceable to a lowered standard of health, which an insufficiency of food entails. Poverty and tuberculosis are close companions, poverty not only furnishing the appropriate soil, but "also increasing the closeness of contact of the frequency of opportunities of infection." Beyond all other measures in the reduction of mortality from tuberculosis, he regards as most active the numerous special hospitals for tuberculosis which have been established in England. Two factors are especially operative as a result of their establishment. The first of these is that among those who die during treatment in hospitals, the period during which they are most dangerous as the sources of infection to their families and others is passed in surroundings where measures to prevent infection to others are constantly employed.

The other direction in which hospital treatment is of special value in the reduction of mortality, is in the case of those who recover or partly recover during hospital treatment. These are discharged sufficiently benefited to return to work, and in addition, while in the hospital, have received sufficient instruction concerning the disposition of their sputa to become much less frequently the cause of contagion to others than before their admission.

The educational feature of sanitarium treatment for consumptives is one of the strongest claims in favor of the establishment of such special hospitals; and the fact that more than one observer has been led to believe that patients, after their discharge, even though not cured, are much less dangerous to their families and fellow-workmen, is certainly worthy of municipal consideration.

Sanitaria have also an undoubted advantage for the poor over climatic treatment, in that it is ordinarily much easier for individuals of this class to leave their work for a month or two for hospital treatment than for the more protracted periods which removal from their homes to more favored climates entails.

TENEMENT HOUSE IMPROVEMENT.

PERHAPS no body of men takes a deeper interest in the welfare and housing of the poor than do physicians. To none more than to the latter do improved methods of ventilation and the elimination of dark apartments used for dormitories and living rooms give greater satisfaction.

The large number of building plans which have been recently filed for tenements as now prescribed by law with large inner courts by which ventilation and light are secured to every room, seems also to indicate that the considerable number already built have proven a profitable investment. Within the first six months of the present year plans have been filed in Greater New York for about seven hundred tenements of this class at an estimated cost of considerably over twenty million dollars.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

It is a matter for congratulation to all concerned that the way has at last been prepared for a union of the Medical Society of the State of New York and the New York State Medical Association.

On another page of this issue we publish the speech presented at Garden City by Dr. Bristow,

President of the Medical Society of the State of New York, on the occasion of a meeting of the Associated Physicians of Long Island, October 17, 1903, in response to the toast: "The Medical Society of the State of New York," to which we direct special attention.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

Dr. Henry W. Burnett, L. I. C. H., '97, has removed to 533 Elmwood avenue, Providence, R. I.

Dr. John M. Holt, L. I. C. H., '95, at present in the U. S. Marine Service, has been ordered from Honolulu to Manila.

Seney Hospital will receive a bequest of \$25,000 by the will of Mrs. Cornelia Prosser, of Cleveland, O.

Dr. R. C. F. Combes, of Hancock street, was recently shot in the right leg by an enraged Italian who imagined that the doctor had permitted his wife to escape from the doctor's sanitarium.

Police Commissioner Greene removed Dr. Stephen S. Cook from the presidency of the Board of Police Surgeons and appointed Dr. E. T. T. Marsh in his place. Under the same ruling the commissioner appointed Dr. Henry P. De Forest to succeed Dr. Paul Smith as secretary of the board.

The Memorial Hospital for Women and Children, at St. Mark's and Classon avenues, has been sold at public auction under foreclosure proceedings to the Jewish Hospital Society of Brooklyn for \$96,500. The sale took place at the Montague street Real Estate Exchange, and was conducted by the D. & M. Chauncey Real Estate Company. The Williamsburg Hospital was the next highest bidder, at \$96,000. The Jewish Hospital will take possession of the building soon, and vacate the quarters it has occupied for several years in the Eastern District. It is rumored that \$250,000 will

be spent in completely renovating the building, especially the plumbing, making the hospital one of the most modern in appointments in this borough.

Dr. William H. Allee, of Brooklyn, graduate of P. & S. N. Y., 1899, has taken up the practice of his profession at Stamford, Conn.

The Archdeacons of Suffolk County, L. I., intend to establish a county hospital in Patchogue in the near future. It is not to be a local institution, although Patchogue is expected to furnish the building and equipment. The plans for the proposed hospital are now being arranged.

Dr. Alfred W. Schooley, borough physician of Braddock, Pa., treated 102 cases of smallpox at the pesthouse during the year past, only one of which proved fatal. He attributes his success to the fact that he refused to permit any of his patients to taste alcoholic beverages during their illness.

Dr. Helene Friedericke Stelzner expresses her disapproval in the *Medicinische Wochenschrift* of Munich, of Professor Stieda's proposal that there should be separate medical colleges for woman. She believes that in such a case the women students would have to put up with inferior teachers, collections and opportunities for clinical study and practice, with the result that people would refuse to engage women doctors.

The annual Field Day of the Long Island State Hospital was held at Kings Park, L. I., September 22. There were special contests for male and women patients, employees and nurses. Some of the contests were barrel rolling, potato race, nail driving, sack race, egg and spoon race, jockey race, wheelbarrow race, bucket race, shoe hunting and an obstacle race. First and second prizes were awarded, most of them useful articles, as tobacco, buckles, scarf pin, garters, shoes, umbrellas, side combs, subscriptions to popular magazines, and watches. Dr. William B. Savage, of Islip, was one of the judges.

The Brooklyn Gynecological Society at its annual meeting in October elected the following officers: President, William E. Butler; first vice president, Water J. Corcoran; second vice president, John O. Polak; recording secretary, H. C. Keenan; corresponding secretary, Victor L. Zimmermann; treasurer, Lewis G. Langstaff; pathologist, Charles Louis Fincke. The Society also voted \$100 to the Kings County Medical Society for the Library Fund.

The seventeenth regular meeting of the Associ-

ated Physicians of Long Island was held October 17 at the Garden City Casino. The scientific session was in charge of Dr. Frank E. West, of Brooklyn. Dr. George T. Fanning, of Smithtown Branch, read a paper on "Fracture of the Sternum; Report of My Own Case;" Dr. Lewis S. Pilcher, of Brooklyn, read a paper on "Recent Experiences in Dealing with Prostatic Obstructions." A dinner at the Garden City Hotel followed, at which the president of the association, Dr. William H. Ross, of Brentwood, presided. Special trains were provided for the accommodation of the Brooklyn members through the courtesy of Dr. George K. Megner, of Jamaica, chief surgeon of the L. I. R. R.

Mr. and Mrs. Samuel Rothholz announce the marriage of their daughter, Isabel Haar, to Dr. Henry Mateland Mills, of 192A Sixth avenue, on September 8th.

Dr. William Dandison Wood, the oldest physician on Long Island, died recently at his home in Jamaica. He was born in Lincolnshire, England, August 2, 1821, and was graduated from the Castleton Medical College, Vermont, in 1855. He was one of the organizers of the Queens County Medical Society, and known prominently for his liberality and generosity. Two daughters and a son, Dr. Philip M. Wood, of Jamaica, survive him.

Dr. H. M. Alexander, the owner of the Lancaster County vaccine farms, near Marietta, Pa., died recently in his country home at Conewago, Pa., aged 52 years. He established his vaccine farms in 1889.

The Long Island Medical Society, of which Dr. Ralph H. Pomeroy is President, announces an important and radical change in the program of its scientific session. Hereafter the Society will be divided into sections of six members each, with its respective Chairman, and each section will have entire charge of the meeting to which it is assigned. Formerly members were assigned by the President.

Following was the program of the semi-annual meeting of the Medical Society of the State of New York in the Academy of Medicine, October 13th and 14th. The President, Dr. Algernon T. Bristow, presided:

1. Hepatic Drainage, J. B. Deaver, Philadelphia, Pa.
2. The Treatment of Certain Classes of the Undeferred, W. S. Ely, Rochester, N. Y.
3. Faculties of the Mind not understood and

not used, with Special Reference to the Curability of Epilepsy, M. A. Veeder, Lyons, N. Y.

4. Evolution as affecting Morbid Processes, M. A. Booth, Elmira, N. Y.
5. Vaccination and the Law, Nelson G. Richmond, Fredonia, N. Y.
6. The Internal Secretions, Glentworth R. Butler, Brooklyn, N. Y.
7. Otitic Serous Meningitis. Lumbar Puncture. Recovery, Francis Huber, New York.
8. Paper by Hon. J. McGaw Woodbury, New York.

Symposium of the Roentgen Ray.

I. The Therapeutic Uses of the Roentgen Ray, A. D. Bevan, Chicago, Ill.

II. The Diagnostic Value of the Roentgen Ray, C. L. Leonard, Philadelphia, Pa.

III. Further Observations upon the Treatment of Sarcoma with the Roentgen Ray, W. B. Coley, New York.

1. A Description of the Present Status of the New York Hospital for the Treatment of Incipient Tuberculosis, Willis G. Macdonald, Albany, N. Y.

2. Potable Waters, E. S. Willard, Watertown, N. Y.

3. Conservation in Pelvic Infections, John O. Polak, Brooklyn, N. Y.

4. The Question of the Relation between Human and Bovine Tuberculosis, D. Bovaird, New York.

5. Dosage, A. Jacobi, New York.

6. The Dispensary Treatment of Tuberculosis, J. W. Brannan, New York.

7. The Causes and Prevention of Infant Mortality in Nurseries and Asylums, E. H. Bartley, Brooklyn, N. Y.

8. The Surgery of Tumors of the Spinal Cord, Geo. Woolsey, New York.

Symposium on Typhoid Fever.

I. A Rational Definition of Typhoid Fever, H. A. Fairbairn, Brooklyn, N. Y.

II. Anomalies and Difficulties of Diagnosis in Typhoid Fever, H. E. Elsner, Syracuse, N. Y.

III. The Management and Treatment of Typhoid Fever, Egbert LeFevre, New York.

IV. The Ithaca Epidemic, L. Coville, Ithaca, N. Y.; Geo. A. Soper, Ithaca, N. Y.

BROOKLYN MEDICAL JOURNAL

VOL. XVII

BROOKLYN-NEW YORK, DECEMBER, 1903.

No. 12

ORIGINAL ARTICLES.

THE LEGAL STATUS OF THE X-RAY.*

BY HON. W. W. GOODRICH,

Presiding Justice Appellate Division of the Supreme Court of
the State of New York, Second Judicial Department.

JURY trials were first introduced in England by Henry II, in 1154, succeeding that hated and burdensome Norman importation, the duel or trial by battle, and that curious form of trial, than which nothing is older and which is everywhere found among barbarous people, to wit, the ordeal, wherein the defendant is subjected to certain so-called *divine tests*, of the balance, fire, water, poison and sacred libation.

A preliminary precept to be laid down in referring to the law of evidence is that unless excluded by some rule or principle of law, all that is logically probative is admissible in evidence, but, as Mr. Justice Stephen, in his Digest of the Law of Evidence, says: "The great bulk of the law of evidence consists of negative rules declaring what, as the expression runs, is not evidence."

The general rule with regard to ordinary photographs has long been that wherever the person or thing would, under general rules, be relevant if produced in court, or the jury would be permitted to see it if convenient, a photograph of such person or thing, if properly authenticated, is admissible when the original cannot be seen. Whenever the jury are likely to be materially aided by the opinions, on matters of fact, of persons specially qualified, they should have them, and, for the purpose of illustrating and making clear the testimony of medical and surgical experts, photographs taken by the Roentgen or X-ray process have been admitted as evidence in the courts of several of the States. A reference to these cases will show the present status of the law upon the subject. The first case in which the question arose in this country is unreported, but there is a summary of it in the *Chicago Legal News*. It was decided in Colorado, in 1896, and in admitting the X-ray photograph, the learned judge (Lefevre) said:

"During the last decade, at least, no science has made such mighty strides forward as surgery. It is eminently a scientific profession, alike interesting to the learned and the unlearned. It makes use of all science and learning. It has been of inestimable value to mankind. It must not be said of the law that it is wedded to precedent; that it will not lend a helping hand. Rather let the courts throw open the door to all well considered scientific discoveries. Modern science has made it possible to look beneath the tissues of the human body, and has aided surgery in telling of the hidden mysteries. We believe it to be our duty in this case to be the first, if you please, to so consider it, in admitting in evidence a process known and acknowledged as a determinate science."

Probably the leading case in this country on the subject under discussion is that of *Bruce vs. Beall* (99 Tenn. 303), decided September 30, 1897. Judge Beard, writing for the Court, said: "In the progress of the trial, one Dr. Galtman was introduced as a witness, and he was permitted to submit to the jury an X-ray photograph, taken by him, showing the overlapping bones of one of plaintiff's legs at the point where it was broken by this fall. This was objected to by the defendant's counsel. This picture was taken by the witness, who was a physician and surgeon, not only familiar with fractures, but with the new and interesting process by which this particular impression was secured. He testified that this photograph accurately represented the condition of the leg at the point of the fracture in question, and, as a fact, that by the aid of X-rays he was enabled to see the broken and overlapping bones with his own eyes, exactly as if, stripped of the skin and tissues, they were uncovered to the sight. We might, if we so desired, rest our conclusion on the general character of the exception taken to this testimony, but we prefer to place it on the ground that, verified as was this picture, it was altogether competent for the purpose for which it was offered. New as this process is, experiments made by scientific men, as shown by this record, have demonstrated its power to reveal to the natural eye the entire structure of the human body, and that its various parts can be photographed, as its exterior surface has been and now is. And no sound rea-

* Read at a Meeting of the New York State Medical Society, Oct. 13, 1903.

son was assigned at the bar why a civil court should not avail itself of this invention, when it was apparent that it would serve to throw light on the matter in controversy. * * * It is not to be understood, however, that every photograph taken by the cathode or X-ray process would be admissible. Its competency, to be first determined by the trial judge, depends upon the science, skill, experience, and intelligence of the party taking the picture and testifying with regard to it, and, lacking these important qualifications, it should not be admitted. And again, that, even when properly admitted, it is not conclusive upon the triers of fact, but is to be weighed like other competent evidence."

The Court was careful to point out, that great caution must be used in admitting these X-ray photographs, a fact which may be illustrated by an incident which happened some time ago in an English court. Evidence was being taken as to the value of certain water privileges, and photographs of the *locus in quo* were put in evidence. The fall in question was only some few inches, but the photographer's art had improved on it. Counsel, wishing to magnify the descent of water, and the consequent value of the right to use it, holds up the picture and remarks:

"Why, my Lord, it is a perfect cataract." But the Queen's Counsel, in his dry way, replies: "On investigation, my Lord, the cataract will be seen to be in my learned friend's eye."

Within one month after the decision in the Tennessee case, an X-ray photograph of a bullet embedded in the skull of the victim of a murder was shown to the jury in the Haynes murder trial at Watertown, N. Y. Referring to that case, the *Albany Law Journal* of October, 1897, observed that "Science has already recognized in the X-ray a valuable agent, and the law does not propose to be behind in making use of every proper means of ascertaining the facts in any given case."

In 1899, the Supreme Court of Maine declared it to be within the discretion of the justice presiding at the trial to admit an X-ray photograph; and in 1901, the Massachusetts Supreme Court went farther in holding that "While a picture produced by an X-ray cannot be verified as a true representation of the subject in the same way that a picture made by a camera can be (more conservative, you see, than the Tennessee court), yet it should be admitted if properly taken."

In 1901 also the highest court of Wisconsin declared: "It is the duty of courts to use for discovering the truth every means reasonably cal-

culated to aid in that regard. In the performance of that duty, every new discovery, when it shall have passed the experimental stage, must necessarily be treated as a new aid in the administration of justice in the field covered by it. In that view, courts have shown no hesitation in proper cases, in availing themselves of the art of photography by the X-ray process."

Nebraska fell into line in 1902.

In our own State, as early as November, 1897, a complete apparatus for the production of X-rays was erected and operated before a jury in the Kings County Court House, in the case of *Hutchinson vs. The Atlantic Avenue Railroad Company*, but no objection was made thereto, in consequence of which the question was not presented to or passed upon by the appellate courts, and in the published reports of the case no mention is made of the use of the X-ray.

The diseases of the human body and the anatomy of its frame are matters of very frequent investigation in our courts, and so ignorant of these things is the ordinary juror, lawyer and judge that the trial would be a farce without the assistance of scientific and medical experts. For the purpose of illustrating medical and surgical expert testimony, it will, I think, be very generally held that skiagraphs or X-ray photographs are, in proper cases, admissible in evidence.

It, doubtless, seems strange that there is no New York case in which this subject has been discussed. There is, however, a very instructive opinion by our Court of Appeals on the general qualifications of the physician and surgeon and the care and diligence which he should exercise (*Pike vs. Honsinger*, 155 N. Y. 201). As it represents the law on the subject I quote it here. "A physician and surgeon, by taking charge of a case, impliedly represents that he possesses, and the law places upon him the duty of possessing, that reasonable degree of learning and skill that is ordinarily possessed by physicians and surgeons in the locality where he practices, and which is ordinarily regarded by those conversant with the employment as necessary to qualify him to engage in the business of practicing medicine and surgery. Upon consenting to treat a patient, it becomes his duty to use reasonable care and diligence in the exercise of his skill and the application of his learning to accomplish the purpose for which he was employed. He is under the further obligation to use his best judgment in exercising his skill and applying his knowledge. The law holds him liable for an injury to his patient resulting from want of the requisite knowl-

edge and skill, or the omission to exercise reasonable care, or the failure to use his best judgment. The rule in relation to learning and skill does not require the surgeon to possess that extraordinary learning and skill which belong only to a few men of rare endowments, but such as is possessed by the average member of the medical profession in good standing. Still, he is bound to keep abreast of the times, and a departure from approved methods in general use, if it injures the patient, will render him liable, however good his intentions may have been. The rule of reasonable care and diligence does not require the exercise of the highest possible degree of care, and to render a physician and surgeon liable, it is not enough that there has been a less degree of care than some other medical man might have shown, or less than even he himself might have bestowed, but there must be a want of ordinary and reasonable care, leading to a bad result. This includes not only the diagnosis and treatment, but also the giving of proper instructions to the patient in relation to conduct, exercise and the use of the injured limb. The rule requiring him to use his best judgment does not hold him liable for a mere error of judgment, provided he does what he thinks is best after careful examination. His implied engagement with his patient does not guarantee a good result, but he promises by implication to use the skill and learning of the average physician, to exercise reasonable care and to exert his best judgment in the effort to bring about a good result."

The physician and surgeon is under an implied obligation, when he undertakes to treat disease or injury, to use such obtainable remedies and appliances as discovery and experience have found to be the most proper and beneficial in aiding recovery, but the mere fact that the instruments used were unusual is not sufficient to show the want of care and skill. The cautious practitioner, however, will be as careful to secure the consent of the patient or guardian to the use of the X-ray, explaining where practicable its attendant risks, as he would be when about to use some powerful anesthetic. And the reason is well expressed by that old legal maxim, *Volenti non fit injuria*.

Dr. James Evelyn Pilcher, Secretary of the Association of Military Surgeons, announces the prize essay competition for 1904 upon the subject: "The Relation of the Medical Department to the Health of Armies." Essays must be submitted on or before September 10, 1904.

A NEW SUGGESTION IN THE TREATMENT OF UTERINE CARCINOMA BY THE COMBINED USE OF FINSSEN LIGHT AND ROENTGEN RAY.

BY GEORGE G. HOPKINS, M.A., M.D.

IN this age of new remedies and specifics, the profession must hold itself somewhat in check, or it will be carried off its feet.

Unintentionally, and almost by accident, my attention was directed to the use of decomposed light, in the treatment of malignant disease, some few years ago.

For the past six years I have given time and thought to the practical application of spectrum rays, and even those rays that lie just beyond the violet rays of the spectrum, to develop their use in the treatment of disease. In this I have spared neither time, strength, nor money and it has very nearly cost me my life.

There is no question in my mind after these years of experiment that we have in the Finsen Light, Roentgen Rays, the German Light Bath, the Minim Lamp and the lamp which I have devised for the treatment of Pulmonary Tuberculosis, remedies for hitherto incurable diseases, and that these should become a part of the equipment of specialists in phototherapy in every city in the world.

Accidents are sure to occur even with the most experienced operators. But with the greater experience, and improved apparatus, and better technique, they are becoming very rare.

By these therapeutic measures, diseases that have been relegated to the incurable class, have been brought out of that class, into the list of curable maladies. By this statement I do not intend you to infer that there has been discovered a specific for all cases of malignant disease, but to affirm that we have as much expectation of cure in the treatment of carcinoma as we have in the treatment of scarlatina or typhoid fever. The experienced eye recognizes that certain cases of fever are beyond cure, so it must be with carcinoma. But I can affirm to-day that we have as much expectation of curing the average case of carcinoma as we have the average case of any of the severe fevers.

Thus lupus, eczema, rodent ulcer and carcinoma of the uterus, of the nose, of the lip, of the tongue, and of the breast, I can affirm, can be cured, from my own experience, and when not cured, life can be prolonged and the pain very

much relieved and discharge reduced in quantity and deodorized.

The short paper which I shall present to you to-night only proposes to deal with the treatment of primary carcinoma of the uterus.

Dr. Welch, in his article on cancer of the stomach, has collected the reports of 31,482 of primary cancers in all regions of the body; of this number 29.5 per cent. were cases of primary cancer of the uterus; this organ claiming nearly one-third of all these recorded cases.

Cullen considers the uterus the most frequent seat of primary cancer of any portion of the body.

Caldwell says: "Cancer of the uterus is so prevalent that nearly all general practitioners see at least two or three cases yearly, and it is upon the family physician that we must rely to recognize the early symptoms and to indicate to the patient the appropriate treatment."

The cases which I have had to treat have been those that have been recognized, at a stage when no surgeon could be found who was willing to operate, as the disease had progressed beyond the stage when operative interference offered the slightest prospect of even amelioration of symptoms.

The gynecologist has devoted a large share of his thought and skill to the operative procedures, for the eradication of these cancers, and we all know with what dismal results.

I believe that I can point out a new and better way in dealing with these malignant growths. But the way is so new that we are unable to say how permanent are the results, as only two years have passed since I began to treat carcinoma in this region, having refused to undertake the treatment of such cases previous to two years ago.

The pathology of uterine cancer is still in doubt. The embryonic theory of Cohnheim, which has been generally accepted for the last twenty-five years, is now contradicted by many of the leading pathologists of the present day.

Be this as it may, our methods of treatment are based largely upon the theory of the epithelial origin of cancer. The human body is the prey of germs acting from within and without inwards; withdraw light from man and he speedily succumbs to the attacks of the myriad forms of bacterial life that he encounters hourly.

That light-rays (the actinic) can reach the interior of the body can be demonstrated by any one with a focusing arc lamp, such as I use in the treatment of tuberculosis of the lungs. This can be done by binding a photographic plate to

the back of a patient and focusing the light upon the chest; sufficient light will pass through the patient to speedily blacken the plate. The same thing can be demonstrated by using concentrated sunlight, and it will be found that these rays are much more powerful than those produced artificially.

The experiments of Duclaux and Blunt, on the bactericidal influence of sunlight, paved the way for Finsen's brilliant achievements in the domain of phototherapy.

That carcinoma of the uterus is, at first, a purely local disease is, I think, the accepted theory of the vast majority of the medical profession who are working in this branch of surgery and therapeutics.

The study of the minute anatomy of the pelvic cavity and its contents, reveals how the lymphatics of this part of the body are so arranged as to be less readily infected from an eroded surface than those of other regions of the human system. This is owing to the comparatively small number of the lymph ducts in the region, and also the smaller caliber of these lymph ducts, in comparison to the size of the cancer cells, making migration to other parts of the system very difficult, rendering infection less rapid and less easy, than from carcinomatous growths that originate in other regions.

This being the case, a method of treatment that will destroy these organisms in their original bed and before their migrations have involved much adjacent tissue, is the great desideratum in the treatment of carcinomatous disease of the female generative organs and the approaches to them.

We think that this method has been found in the Finsen Light supplemented with the Roentgen rays.

The vast majority of surgeons who are accustomed to doing hysterectomy, consider it not as a curative measure, but one that will save much suffering and prolong life.

A gentleman who has had a large experience with this operation said to me quite recently that he had never known a case of carcinoma uteri that had been cured by operation. However, by it the patient is saved much suffering, and her life is usually lengthened, but it very seldom cures. Undoubtedly the most distressing symptoms of this disease are mitigated and life made endurable by the removal of the organ. Yet with the most extensive ablation it is impossible to know that all the diseased tissue has been removed, and if not, recurrence must take place. Recurrence is the rule within the year, and yet the operation is jus-

tifiable, if no better method of treatment can be devised. That this subject is receiving marked attention on the part of the medical profession, and is being very carefully and thoroughly investigated, is evidenced by the fact that so large a number of monographs treating of this subject have appeared in the last few years in the various medical journals of the world.

In a not very exhaustive search of the current literature of this subject I have found sixty-four special articles written on the uterine carcinoma within twenty months.

Then we have the exhaustive treatise by Cullen, which is the most satisfactory work of the kind ever put in print. Is this large volume of literature an indication of an increase in the number of cases actually occurring, or is it that the disease is more often discovered than formerly from being more closely studied, and because it is being brought more generally to the notice of the profession? This has brought the subject prominently before the general practitioner and a large class of cases is reported that have heretofore not been available for statistical study and classification. My investigations lead me to believe that more cases are being brought to light, not that there are relatively more cases of disease. Dr. Moore-Madden, whose experience in the observation of uterine cancer is second to none, is of the opinion that there is a large increase in the number of women attacked with uterine cancer, especially during the last few years. With this opinion I cannot agree. His statistics indicate that his position is well taken, but statistics are often misleading, and we are apt to twist them to suit our own bias. It has been aptly said that you can prove anything, except the truth, by statistics.

It is the generally accepted opinion of the medical profession that unrepaired injuries of the uterine cervix and vaginal walls are a factor predisposing to carcinoma. The fuel is laid and it only needs the match to start the flame.

There is an unknown tendency of constitution in certain lines of descent that seems to present the pabulum for the fruitful culture of the cancer germ. This tendency gives rise to the popular idea of heredity in many forms of disease.

I do not believe in the hereditary transmission of constitutional disease, but I do believe in a condition of tissue which is favorable to the growth of certain disease germs when they are deposited upon it, as it has not the power to resist germicidal invasion.

It may be that the phagocytes of certain consti-

tutions are not strong enough to assimilate these bacilli and prevent their poisoning the system.

On the phagocytic theory alone can we in the present state of our knowledge of the causation of disease account for the escape of the large majority of mankind from infection by the germs of malignant diseases.

Theories as to the causation of cancer have claimed the attention of physicians for centuries and seem likely to be an unsolved problem for many years to come.

The literature of the various remedies that were expected to prove specifics in the treatment of this dread disease is interesting and instructive.

Many remedies once useful to a certain degree have fallen into disrepute and cease to be used because they did not accomplish all that their enthusiastic advocates claimed for them. A few of these will bear mention because of the wide repute they at one time attained.

About twenty years since, turpentine was strongly advocated as a curative agent in cervical carcinoma. As the drug was expensive, it was claimed that want of success in treatment with this agent was due to the operator using an adulterated or substituted article. I therefore procured a supply directly from Schieffelin & Co. A careful and systematic use of the drug was made, as at that time I was seeing a goodly number of such cases. I was unable to see any beneficial effect in a single patient from use of this drug. The experience of other operators coincided with mine.

The juice of the Brazilian alveloz was the next application brought prominently before the profession under the advocacy of the late Dr. Lusk. Beyond modifying the character of the discharge it has proved to be of little utility. Its deodorizing effects are far inferior to those of potassium permanganate.

Golden Seal has fallen into disuse, though of undoubted value when there exists a fungating, bleeding, cauliflower excrescence. Where better remedies are not at hand, it will prove of great value in stanching the hemorrhagic flux.

Another valuable remedy in this class of disorders is the once vaunted specific, thuja accidentalis. This remedy is exhibited in the form of a tincture in doses of 20 to 30 drops three times a day, and should be remembered as a useful aid in controlling the hemorrhage of uterine carcinoma.

Shultz claims a curative effect in cervical cancer from injection into the diseased tissue of ab-

soluble alcohol. The treatment is so excessively painful as to require an anesthetic before being employed.

Probably no remedy comes to us more strongly endorsed by creditable authority than pyoptarin. It is vaunted as being a specific in all forms of cancer. I have used it freely and carefully in uterine carcinoma, but I have been grievously disappointed in its effect upon the diseased tissue. Its particular field was claimed to be uterine carcinoma. I have used it without stint per os and locally with no beneficial result. I hoped so much from this remedy that my use of it was extended over a period of several years and I am convinced that it has no special efficacy in any form of carcinoma in any locality.

The use of escharotics in the treatment of cancer of the cervix is one that has accomplished much harm and done very little good, except in the hands of a very few experts in this method of treatment. The remedy has in many cases been worse than the disease.

I recall a case in which less than four years ago a physician of considerable repute, without making a histological examination, diagnosed a uterine fibroma as a carcinoma and applied caustics so freely as to produce a recto-vaginal fistula. The case came under my care more than a year after the cauterizations had been done; there was complete occlusion of the rectum from the thickening caused by the frequent cauterizations, the vagina having assumed the function of the rectum. This uterus was the seat of several fibroid tumors. Had scrapings or clippings been taken in this case and properly examined this unfortunate error could not have occurred.

The most persistent and indefatigable worker in the field of cauterization for a period covering more than thirty years was the late Dr. John Byrne. He was careful, painstaking and insistent upon the efficacy of his procedure. I had cautery batteries constructed under Dr. Byrne's direction and found the treatment very useful as a palliative, but not curative.

I believe that I have devised a very satisfactory method for the cure of uterine carcinoma, especially when the disease originates in the cervix. This method is the combined use of the Finsen light and the Roentgen Ray, the principal dependence being the Finsen Light.

The penetrating power of the Roentgen radiance speaks for great caution in its use in this region, especially in recurrent cases in which hysterectomy has been done. I have found that an hour's exposure to the Finsen Light and 5 to 8

minutes' exposure to the X-Ray is a good proportion. This proportion has given most excellent results, and so far has done no injury.

With my first patient and in the fixed position of the light as arranged by Finsen, the patient had to be placed in a very constrained position to have the light enter the vaginal canal. I have detached the tube from its fixed position and mounted it upon a stand. The stand has a heavy iron base, weighing about 75 pounds. Its center is perforated and a piece of tubing screwed into it. In this tubing is fitted a rod, which can be fixed at any elevation by a set-screw. To the upper end of the rod is attached a hinged head, which has a square opening to receive a rod of iron which carries the tube; this hinge is controlled by a clamp screw. The distal end of the rod has attached to it a small rod by hinged joint; this rod passes through a clamp joint attached to a collar, which is fitted to the tube arising from the base. This collar can be raised or lowered and is fixed by a clamp screw. By lowering or raising the adjustment, the angle of the tube can be varied at will. By the adjustment on the upright it can be raised or lowered. With these adjustments I can vary the height or angle of the tube to suit the patient, and not subject her to the fatigue of a very constrained position of an hour or more, as was necessary with the original mounting.

To meet the varying angle of the tube I have had to provide for the change of height and angle of the arc lamp; were this not provided for we would be deprived of the greater portion of the actinic rays.

To provide for these adjustments I have removed the four wires by which the lamp was hung, in Copenhagen, and attached it to a yoke by a hinged joint, the yoke being the terminus of a rod sliding in a tube. This is attached to the head of the frame which encloses the lamp. A quadrant with a slit in it for a clamp screw, which is attached to one arm of the yoke, controls the angle of the lamp absolutely.

Thus we have an apparatus by which the light can be used at any desired angle and height. From the description this arrangement may seem complicated, but it is really so simple that almost any one seeing it would say: "Why have I not made such an arrangement myself?"

As is often the case, there are cheaper substitutes for the Finsen Light offered to the profession, claiming to accomplish the same result by less expensive methods. I have yet to see a good substitute for the Finsen apparatus, though we would welcome it.

There is but one that is put out from New York. It has somewhat the appearance of a searchlight, with a cap over the front opening containing a small aperture about three inches in diameter. This is claimed to be a substitute for the Finsen Light, because there are no hot rays to cool down. The why of this is very easily explained. If anyone will observe the circle of light cast upon a surface by a search light, they will see that the center of the circle corresponds to the dead point in the light caused by the carbons and their carriers intercepting the light. At this point, there being no light, there is, therefore, no heat.

The application of the light and radiance requires considerable thought and skill, the deposits being differently arranged in each case.

When the vagina is not involved, we can use an ordinary bivalve speculum and protect the lateral walls with tinfoil. I have had an extreme case in which the vagina would only admit a bivalve $2\frac{1}{2}$ inches long; in the course of six weeks we could use a posterior blade of the speculum $5\frac{1}{2}$ inches in length.

Leadfoil is readily arranged so as to fill up the space between the blades of the speculum.

With the Finsen Light the external parts only need the protection of some fabric, but with the Roentgen rays we need metallic protection, and of all metals lead is the most satisfactory. I have had two patients come to me who had been subjected to the X-ray treatment, one of whom had an ulceration on both thighs, while in the other, though only the left thigh was involved, the lesion extended down to the muscles. So far I have never produced anything more than a slight erythema, which usually passes away in a period of 36 hours. The patient is placed in the recumbent position on her back, and the rays so arranged that they will impinge upon the diseased surface. So far as the Finsen rays are concerned, we can let them play upon the parts for an hour or more, but with the X-ray it is different, the time must be limited, and, when hysterectomy has been performed, I use more caution, as I cannot limit their penetration, and there is no uterus back of the vagina to intercept and partially absorb the rays.

This paper is not intended to give the clinical history of cases, but the general statement of the results of treatment.

I have had cases before and after operation had been done.

The cases that have come to me, that have not been subjected to operation, have been very far advanced, and I was sorry to institute treatment,

that was experimental, in such hopeless cases. But the results have been such as to place this method of treatment, by the combined use of Finsen Light and X-ray, above every other method yet devised for the treatment of this hitherto incurable malady and lifted it out of the incurable class of diseases.

I believe we may hope to cure the majority of such cases as I have not yet seen a case that has not been benefited by treatment, and in all but one case I believe a cure has been accomplished, though the time (two years) is too short to claim that we have cured.

The record is not so good in recurrent cases, after operations of greater or less magnitude.

The clinical history, of a number of cases, has been included in a more general paper on Phototherapy, and will appear in print very soon.

SUBPECTORAL ABSCESS.

BY RUSSELL S. FOWLER, M.D.,

Attending Surgeon German Hospital; Adjunct-Surgeon, Brooklyn Hospital; Assistant-Surgeon M. E. [Seney] Hospital; etc., Brooklyn, New York.

Read before the Brooklyn Surgical Society, Oct. 1, 1903.

SUBPECTORAL abscess is a suppurative inflammation occurring in the connective tissue underlying the pectoralis major muscle. More rarely the abscess may underlie the pectoralis minor. In its phlegmonous form like subscapular abscess, in the early stages, it presents some difficulty in diagnosis. It occurs as a primary or secondary affection. When primary, the exciting cause may be a blow resulting in a locus minoris resistentiæ to which infection is carried through the supra- and infra-clavicular lymphatics. The abscess may be secondary to infection entering anywhere in the course of these lymphatic vessels through a wound in the neck or chest. Secondarily, it may result from abscesses within the chest which perforate the chest wall beneath the pectoralis major muscle, or it may follow necrosis of the underlying ribs, in which case it is usually tubercular.

Primary subpectoral abscess is a rare affection. Nor is the early diagnosis of the condition easy. The patient may give a history of a blow at this point or of some slight abrasion of the skin somewhere in the neighborhood. Pain is complained of over the pectoralis major muscle. This is intensified by movements of the arm upon the affected side, calling into play the pectoralis major

muscle. The patient consequently is averse to moving the arm and endeavors to relieve the pain by supporting the weight of the arm with the other hand. Inspection reveals a more or less diffused swelling beneath the body of the great pectoral muscle. If seen early, no appreciable swelling may be present, and the diagnosis will then rest upon pain, point tenderness, the rigidity of the shoulder and a rise in temperature. Even at a later stage the swelling may be so diffuse as to render recognition difficult. The skin overlying the muscle is unchanged as a rule. Should the infection be an exceedingly virulent one, the body of the muscle may become involved in the process. Under such circumstances edema of the skin will be present and the infection advancing will involve the skin and the abscess evacuate itself spontaneously. More rarely a well-defined protective zone will be established and the abscess will be found in the center, its strong walls lined with pyogenic membranes. Owing to the dense aponeurotic structures beneath and the resistance of such structure when uninjured to participate in a suppurative process, there is slight danger of the abscess perforating the chest, particularly as the pus can easily follow the course of the pectoralis major muscle and is consequently not under tension unless a strong protection zone has been established. In the majority of cases the pus tends to progress in the direction of the axilla, those beneath the pectoralis minor pointing in the axilla, those beneath the major pointing in front of the axilla just behind the border of the pectoralis major muscle. The axillary glands may be involved secondarily.

In such cases a soft swelling will develop at the lower border of the pectoralis major muscle near the axilla. If untreated, the skin will become involved and the abscess will evacuate itself at this point. Should the infection have been allowed to progress to such an extent, healing will be difficult, as the presence of pus for so long a time in the tissue will have resulted in a more or less defined pyogenic lining of the irregular shaped abscess cavity and until this lining has been gotten rid of, healing will be impossible.

Even in the early stages of the infection, the general health will suffer. The patient will run an irregular temperature, the tongue will be coated, the appetite poor and the patient greatly prostrated. Unless the abscess is quickly evacuated, the patient will have repeated chills and present the symptoms of marked sepsis.

Treatment.—In regard to treatment, we must

divide the disease into two forms, the diffuse in which pus is tending to progress in the direction of the axilla, the usual form, and the circumscribed form in which an abscess wall is in the process of forming. It is needless to say that early evacuation is the only treatment permissible. There are a few precautions to be taken whether the collection is opened by way of the axilla or through the skin and muscle overlying the abscess. In the former case, the incision should be parallel with the border of the pectoralis major muscle and a short distance from it, in order to avoid injury to the long thoracic vessels. In cases in which the pus is not progressing in the direction of the axilla or is more or less localized, an incision directly over the abscess may be made. Following incision of the skin, a pointed artery clamp is freed through the intervening tissues until its point is felt to move freely in the abscess cavity. The clamp is then opened widely and withdrawn open. This avoids unnecessary injury to the muscles. This modification of Hilton's method, I think preferable to the preliminary employment of a grooved director. In the case of abscess reached in this way, a thick-walled drainage tube should be inserted and the abscess cavity thoroughly irrigated with an antiseptic solution. The question of curetting such cavities depends upon the time they have been in existence and the presence of a pyogenic lining membrane. If such is present, it should be removed by the curette. In the recently formed abscess vigorous curetting is unnecessary. Free drainage is, however, essential. In subpectoral abscess opened through the axilla, the above rules hold good. If recent and not lined with membrane, it is unnecessary to curette them. Flushing out and free drainage are all that is needed. If, however, the evacuation of the abscess has been accomplished by nature and a persistent fistula remains, it will be necessary to do more than merely curette. It will be necessary to dissect out the entire suppurating tract before healing will be effected.

Aside from the redressing of the abscess by the usual methods, there is one point in the after-treatment which must be borne in mind, *i.e.*, the avoidance of stiffness in the shoulder joint. If not prevented by massage and passive movements of the joint, there will be present a certain amount of stiffness for some time after the abscess has healed and the pain and disability attending the treatment of this result of the lesion will prove of decided annoyance both to the patient and the physician.

PALLIATIVE TREATMENT OF CANCER OF THE CERVIX, WITH REPORT OF CASES.

BY WALTER B. CHASE,
of Brooklyn.

Abstract of paper read before the American Association of Obstetricians and Gynecologists, Chicago, Sept. 22, 23 and 24, 1903.

CANCER and tuberculosis are the diseases which from time immemorial have been regarded as practically hopeless. To-day the etiology of tuberculosis is better understood and more amenable to treatment, but unfortunately less progress has been made both in etiology and treatment of cancer. Radical treatment of cancer of the cervix has been so unsuccessful that the palliative treatment demands more attention. The indications are to arrest or limit the progress of the disease and its manifestations, particularly the ulcerative hemorrhagic offensive discharge, pain and constitutional infection which follow. The use of a violent escharotic, like acid nitrate of mercury, and pastes made with arsenic as a base, do not fulfill the indication. They are slow and painful in their operation, and there is difficulty in limiting their action—involving in their destructive activity not alone diseased but healthy structures.

In the relief of cervical cancer the value of the thermo-cautery, either the galvano or Paquelin, has superior advantages. Applied with skill, it is usually bloodless. A high amputation, accompanied, it may be, with coring out more or less of the corpus, if the disease indicates it, is comparatively easy of accomplishment. The cautery effectually closes the absorbent vessels and limits infection. In addition to this the influence of heat on cancer cells, beyond the area of the actual destruction of tissues, is most satisfactory. Doubtless the superiority of the thermo-cautery treatment rests largely on these two results; the healing is often prompt and the diseased growth is arrested and in some instances permanently so. Coincident therewith the pain and offensive discharge are mitigated or arrested. Reports of cases coming under palliative treatment two and a half years ago show no return of the disease and to present appearances are cured.

The thermo-cautery treatment of cancer of the cervix is not advocated as a substitute for radical operative interference, but as a palliative method for those cases in which radical measures are not indicated from the advance of the disease and in cases where the patient refuses operation.

It must, however, be remarked that there are statistics which go to confirm the belief that the thermo-cautery treatment of these cases show more cures than that followed by hysterectomy. The statistics of the late Dr. John Byrne are referred to.

The efficacy of the Roentgen and Finsen ray treatment for cervical cancer is yet in the experimental stage, and its true value as a curative agent has not as yet been definitely fixed. The writer of the paper has seen salutary effects follow the use of the Roentgen ray, particularly in the rapid disintegration of the malignant structures, and a more healthy state of the resulting granulations.

CASE 1.—Mrs. S., aged forty-three. No children, but several miscarriages, a patient of Dr. Nutt of Woodhaven, entered the Skene Sanatorium March 11, 1901, with a cauliflower excrescence springing from the cervix as large as a man's fist. Being reflected on the vagina antero-posteriorly and laterally forbade a present attempt at hysterectomy. On March 14 I removed the growth by the galvano-cautery and amputated the cervix. The uterine stump healed, save an area rather smaller than a silver half-dollar. On May 21 following she re-entered the Skene Sanatorium and I performed an abdominal hysterectomy. Prior to this operation she was pale, anemic and in poor physical condition. Her convalescence was satisfactory. She was kept under monthly observation by Dr. Nutt, and in May, 1902, one year after, there appeared at the seat of the vaginal scar a hardened nodular mass, rather smaller than a silver half-dollar. She entered the Memorial Hospital May, 1902, and I removed a button of tissue extending from the vagina through into the peritoneal cavity, completely excising the growth. Since that time her health and strength have improved, and on an examination at my office during this September she is in most perfect health, generally and locally.

CASE 2.—Mrs. H., mother of several children, aged about thirty-nine. Entered the Skene Sanatorium March, 1901, with carcinoma of the cervix. She was cachectic. The disease had involved the vaginal walls to such an extent as to preclude hysterectomy. I did a high thermo-cautery operation, the parts healed promptly, and Dr. Cook informs me she remains in excellent health.

CASE 3.—Mrs. B., aged forty-six, German, mother of three children; one miscarriage seventeen years ago (since which time she dates her trouble); was sent me by Dr. Schaaf of New-

ark, N. J., in September, 1902. She had a large bleeding cauliflower excrescence extensively attached to the cervix and vagina, which nearly filled the vagina. It was ulcerating, with frequent hemorrhage and offensive discharge. She had been advised by eminent gynecologists of New Jersey and New York City that her case was inoperable, and a more demoralized patient I never saw. She entered the Memorial Hospital September, 1902, and on the 25th I removed the growth by the thermo-cautery. In two months' time, under daily treatment, it had healed, save a cup-shaped depression three-quarters of an inch in diameter and one-half an inch in depth. Since this first operation in September, 1902, Mrs. B. has had two other thermo-cautery operations, one in November, 1902, and the other in June, 1903. Since February 3 last the Roentgen ray treatment has been applied at intervals, with the effect of modifying the condition favorably. The growth has broken down to a large extent, and much healing has taken place, but symptoms of malignancy have not altogether disappeared. Her health has been conserved, her life prolonged, and her condition is that of comfort, with prospect of a very considerable time to live. The conservative influence of palliative treatment has been demonstrated, for without it she would probably not have survived the winter.

CASE 4.—Mrs. M., German multip., aged thirty-eight, a patient of Dr. Fred. A. Cook. She entered the Memorial Hospital in September, 1902, with epithelioma of the cervix. I did a high thermocautery amputation, which was followed by perfect healing. About three months since I examined this woman. The uterus was normally movable and she was in excellent health. The history of these few cases furnishes data from which any one can draw inferences. There is no certainty they are cured, though the first and second probably are. Time will fix the status of the other two.

CASE 5.—In March, 1896, Mrs. A., primipara, aged forty-two, a patient of Dr. E. P. Crowell, came under my observation with typical carcinoma of the cervix, accompanied with extensive involvement, hemorrhage, cachexia and great prostration. She entered St. John's Hospital March 17, and I did a high galvano-cautery amputation. She made a slow but satisfactory convalescence so far as healing and local symptoms were concerned, and after two or three months she was able to resume her family duties. On November of the same year she entered my service at the Bushwick Hospital for extirpation of a

large bartholin gland. At this time there was no sign of return of the cancerous growth. On June 16, 1897, she re-entered the Bushwick Hospital, being seven months pregnant. The disease had returned, springing up around the old stump. After watching its behavior I feared labor might induce rupture of the uterus. I accordingly, on July 18, at the eighth month of pregnancy, removed the diseased growth by the thermo-cautery. No shock followed and partial healing took place. She was delivered on August 6 of a living healthy child, and her convalescence from the confinement was satisfactory.

The growth reappeared, and she entered my service at the Central Hospital June 21, 1898, and another removal of cancerous formation was made by the thermo-cautery. She returned home August 25. The healing was not satisfactory, and she died a few weeks later from cerebral embolism.

There is one peculiarity of the results following the thermo-cautery operations to which I desire to give emphasis, viz., if there is no burning of the muco-cutaneous surfaces the pain is almost entirely absent. So also cases which have had these operations have in my experience been greatly relieved and often entirely relieved of the pre-existing pain by the operation.

PERITONEAL ADHESIONS IN THE PELVIS.

BY HENRY C. KEENAN, M.D.

Read before the Brooklyn Gynecological Society, Oct. 2, 1903.

I HAVE taken for the subject of my paper tonight a matter which I believe is of perennial interest to gynecologists, comprising as it does the cause of most of the symptoms for which we operate, and likewise of those disagreeable sequelæ which occasionally follow our well intentioned interference. I take up this subject with no hope of adding anything new or original to our present knowledge or treatment, but rather to review what has been thus far accomplished, provoke discussion and bring out the new ideas of our members.

These adhesions are not, of course, a disease entity in themselves. Still, on account of their continuance after the original disease has passed or of the annoying or dangerous symptoms to which they give rise, they may stand out so prominently as to attract the major part of our attention and treatment.

The various etiological factors entering into the formation of what I may call pre-operative adhesions comprise practically all those causes which tend to produce inflammation in any of the pelvic organs. These are too familiar to you to require any mention. A few words, however, in regard to the causation of post-operative adhesions may not be out of place. The question is of such practical importance that not only have numerous investigators studied it in the laboratory upon animals, but synchronously surgeons have tried to solve it in the human body. While results do not always coincide, certain general principles have been established. That adhesions can form after perfectly aseptic laparotomies has been the conclusion arrived at by Thompson after very careful experiments. Senn has shown that irritation of the peritoneum will cause adhesions to form in a few hours. In an autopsy performed eighteen hours after laparotomy I found the peritoneal surfaces of the wound firmly adherent. Walther, in his experiments, proves almost conclusively that, if the peritoneum be exposed to the drying action of the air for any length of time, adhesions will form, while if the exposed parts be kept constantly moist with a normal salt solution no adhesions occur. Turck shows that shock and lowering the temperature of the peritoneum permit infection to take place easily. Heat in the form of rubber bags containing hot water at 50° C. put into the belly cavity during the operation prevented shock and stopped subsequent infection. His conclusions are that the loss of heat is largely responsible for shock and infection and is preventable. "Heat stimulation applied to the splanchnic area for a definite length of time seems to be not only antibacterial but also antitoxic in its action." Von Stockmer found that when gauze tampons were introduced into the pelvic cavity the intestines became attached to them. If the gauze was left *in situ* for five days it drained the general cavity and only slight adhesions existed, but if it remained a week or more it became encapsulated and there were extensive adhesions. That adhesions are formed after gauze drainage is, of course, a well established fact in surgery. How persistent they are is a practical point. Kelly says that in most cases there are remarkably few after a lapse of several months, subsequent operation for hernia proving this. Bissell, in reviewing the work of Dr. Nichols at the Woman's Hospital, says, from the experience of a number of secondary laparotomies, that the exudate from gauze packing becomes absorbed and does not cause extensive ad-

hesions. "It often occasions surprise to find how few there are." Numerous surgeons have reported cases of adhesions, very firm in character, between the intestines and a raw pedicle. The raw surfaces left after separating adhesions readily unite. Turck gives a report of five secondary hysterectomies following the removal of pus tubes. In all these he found the intestines or omentum strongly adherent to places where previous adhesions were broken up. Coe reports a case in which it seemed impossible to prevent the reformation of adhesions. One case of my own also illustrates this point. The patient had two successive operations to relieve the symptoms of adhesions. An examination some months after the last operation showed that they had reformed.

The results of the formation of adhesions depend on the position, extent and parts affected. Organs are distorted and bound down, and after the active inflammation has passed a passive congestion is often kept up, functions are disturbed and the patient rendered miserable. Reed cites cases to show the effect of adhesions on the uterus. How it disturbs menstruation, produces sterility and provokes abortion.

Vineberg reports a case of distocia due to adhesions following operation. A gauze drain was used in this case. Pauton finds among the most frequent causes of ectopic gestation distortion of the tube by adhesions. Instances could be multiplied throughout every organ of the pelvis. Sufficient has been said, however, to show how many and serious pathological conditions may be produced according to the distribution and extent of the adhesions. The symptoms, likewise, are many and various, running the gamut, all the way, from a slight dysmenorrhea to an obstruction of the bowel caused by ileus. Pain is the most constant symptom complained of. It is usually referred to the pelvis but sometimes to remote organs. The latter particularly is likely to be the case when short adhesions are formed and the abdominal organs are pulled upon. Here is an example from Dr. MacEvitt's service, St. Mary's Hospital: Patient, a young married woman, following a vaginal hysterectomy for sarcoma of the uterus by another operator, came to the hospital complaining of pain and distress in the upper abdomen. Likewise on rising from a stooping posture would feel a sharp tug with considerable pain in the abdomen. Examination showed a mass in the pelvis connected with the old scar at the end of vagina.

Laparotomy.—Omentum found firmly adherent to end of vagina and pulling down colon and

stomach. Part of omentum tied off and removed. Raw surface whipped over. Patient made a good recovery and several years later was in good health with no return of former symptoms.

The presence of adhesions can, as a rule, be readily made out on examination. This should be done not only in the back but also in the knee-chest or the Sim's position, and the mobility of the parts thoroughly tested. Frequently the thread-like strands can be felt behind the uterus as that organ is put upon the stretch. The lessened mobility, malposition and distortion of the various organs all point to the diagnosis.

If, however, the adhesions are high up in the pelvis, particularly with the intestines, it is frequently difficult and sometimes impossible to map them out.

The treatment of adhesions, both inflammatory and postoperative, has given rise to much discussion and difference of opinion amongst gynecologists. Some treat nearly all their cases by non-operative means while others try to relieve the condition by operation. Certain others again combine both methods.

It has been my endeavor to examine into the claims of the various methods and see what results have been produced both for an anatomical and a symptomatic cure.

Numerous procedures have been devised to cure adhesions without operation. They may be briefly summarized. They consist in the use of tampons (usually containing glycerine ichthyol or iodide). Painting the vault with some counter-irritant. Therapeutic agents taken internally. Hot air. Pressure. Hot water douches given in various ways and at various temperatures. The assumption of certain postures. Massage as devised by Brandt or a combination of one or more of these.

J. G. Clark gives Stratz's method and reviews his statistics: Stratz uses water at 45° to 50° C. or even 60° C. The external parts are protected, the pelvis is raised and four quarts are used. The physician or nurse gives the douche. Glycerine and iodide tampons are used afterwards. Rest in bed is advocated. Occasionally massage is employed. As an example of what may be accomplished by this method I will give a few of his good results with the reviewer's criticism:

CASE I.—Twenty-three years of age. Perioophoritis. Peritonitis adhesive. June 16, 1899, both tubes thickened, very sensitive on pressure. Douglas's folds infiltrated and painful. Patient very anemic. June 21, admitted to clinic, when streptococci were found in the vaginal secretions.

Treatment, hot irrigations, glycerine tampons and hot baths. July 10, menstruation painless. Right adnexa normal, not sensitive. Right Douglas's fold infiltrated, not painful. August 16, menses have continued without pain.

Reviewer's Criticism.—In such cases as this the treatment employed is certainly of benefit and will often give just such relief as here noted.

CASE II.—Twenty-five years of age. Puerperal infection. Metrosalpingitis, peritonitis chronica adhesiva. As a result of instrumental labor two years before admission to the hospital. Patient was confined to bed six months with symptoms of puerperal infection. She complains of headache, dragging sensation in lower abdomen, severe pain in sacrum, and extreme weakness. July 27, 1899, liver and spleen somewhat enlarged, tender, sensitive. Uterus and both appendages thickened slightly, movable and very painful on touch; adherent to surrounding parts. Infiltration of Douglas's folds. Hot ichthyol compresses, hot irrigations; six days subsequently: no pain on pressure.

August 5, after ten days' treatment, all pain has disappeared, the adhesions are released and the genital organs, with the exception of slight painful thickening of the right ovary are normal. Patient feels strong and well.

CASE III.—Twenty-four years old. Pelviocellulitis, peritonitis adhesiva. Subsequent to operation for appendicitis the patient suffered severely from peritonitis and right sided parametritis, which confined her to bed for two months. Admitted to hospital August 20, 1898, suffering from great weakness, nausea and vomiting. On right side appendages were adherent to cecum and were excessively tender. Treatment, hot douches, pelvic massage, hot baths. September, 1898, pain had disappeared, no vomiting. After the pelvic massage the adhesions are still somewhat painful. October 15, 1898, adhesions had disappeared, slight thickening of right adnexa, otherwise organs are normal. January 9, 1899, patient well and strong.

Reviewer's Criticism.—In such a case as this I look upon the treatment as ideal, and never to be replaced by operation, for in such cases there is a cellular infiltration rather than an accumulation of pus.

Mallett claims that extract of parotid gland internally, materially assists in the absorption of adhesions when combined with local treatment by tampons and douches.

At Schanta's clinic pressure is used. The patient is put upon the back or side, according to

the situation of the lesion. A Braun's colpeurynter is introduced into the vagina and from 500 to 1,000 grams of quicksilver allowed to run into it. Counterpressure is obtained by bags of shot upon the abdomen. The pressure is kept up from one to several hours, depending on the way the patient stands it. It is claimed that absorption of adhesions and reposition of organs takes place in a very short time.

Palano employs hot air. The patient reclines with the middle part of the body in a box. The air is at first heated to about 120° C., and the session lasts twenty minutes. After a week the air is heated to 135° C. to 150° C., and the time increased to forty-five minutes. There are no bad effects. Good results are claimed in from fifteen to twenty sittings.

Massage after the Brandt method, usually with the after use of tampons, is very popular with most men who follow the non-operative treatment. Zeigenspeck is enthusiastic and claims very good results in all forms of pelvic inflammation. Montgomery, likewise, especially in post-operative adhesions. Ill says that it is shown by reliable statistics that only 60 per cent. of operative cases get well. He gets good results from iodine to the vault and massage. And so on the list could be enlarged far beyond the limits of this paper.

With such a vast array of evidence in its favor it must be acknowledged that the non-operative treatment of adhesions has many claims to our consideration. However, while believing that much can be done without operation, I have given you here the best side of it. In a number of the papers examined the patients were marked cured too quickly, and no note was given of the findings a year or so later, which is the crucial test of any form of treatment. From a not inconsiderable experience, both at St. Mary's Hospital and the Vanderbilt clinic, I can substantiate many of the claims here made. But on the other hand, I have found that a considerable number of the patients whom we discharged relieved of their symptoms, and as far as we could make out anatomically cured, returned after various lengths of time with very much the same condition for which they were first treated.

I believe that in a case of salpingitis the infection in the tube will cause adhesions to form again and again. Some claim to cure the salpingitis. Personally, I believe this is much more rarely accomplished than is reported.

A large proportion of gynecological cases are, however, admittedly operative and the question

which comes strongly before us is, How are we to prevent adhesions forming and nullifying the effects of our interference? This question necessitates a consideration of the patient before, during and after operation. It is a well-known fact that where numerous fresh adhesions are broken up, as in acute cases, it is almost impossible to prevent them reforming. The danger from waiting in these cases is, as a rule, not at all great. They nearly all clear up considerably under absolute rest in bed, hot douches, etc. It is a delicate question sometimes to tell which cases are best to do immediately and which may be safely allowed to wait. In hospital practice it frequently happens that after the acute symptoms have passed the patient refuses operation and goes home with damaged pelvic organs to be the source of future misery to her. The length of time necessary to carry out the pre-operative treatment is often prohibitive. While the claim that the adhesions will clear up better after operation when there is no focus of infection present, to stimulate their formation, must also be considered.

Animal experimentation as quoted in the first part of this paper has shown us the etiology of peritoneal adhesions and as a corollary the prophylactic care which must be exercised during operation to prevent their occurrence. Ward, in concluding an excellent paper on post-operative adhesions, sums up what our endeavor should be as follows:

The attainment of asepsis as perfect as possible by the most rigid adherence to the most modern methods of securing surgical cleanliness. Second, the avoidance of raw surfaces and pedicle stumps by covering them with peritoneum or grafts of peritoneum and the abandonment of ligature *en masse*. Third, protection from dry air contact by the employment of moist asepsis and keeping the exposed parts covered wherever possible. Fourth, the time element, rapidity of operating by technical skill, thorough preparation and trained assistants. Fifth, keeping up the heat of the peritoneal cavity by frequent renewal of the hot salt solution (115°) and by protection of the exposed parts. Sixth, avoidance of excessive manipulations of the intestine by technical skill, proper anti-operative preparation of the bowels, etc.

In spite of the utmost care as here advised, adhesions may be invariably expected to occur after certain laparotomies. Especially is this likely to occur in those cases where the agglutination between serous surfaces has been broken up and raw areas left. To prevent the reformation of adhesions in such cases a number of different pro-

cedures have been devised. Baum, in 1894, wrote that he had tried a woven cloth of catgut, but found it too cumbersome and too hard to make; next he tried gold-beaters' skin, and lately had been using peritoneum taken from a young bullock just slaughtered. Morris first used aristol. Lately he has made experiments with gold-beaters' skin recommended by Dr. Cargile. He reports that Cargile's membrane seems to resist absorption for not less than ten nor more than thirty days. Its presence apparently causes loose adhesions between it and surrounding peritoneum, but these are soon absorbed. The membrane seems to cause little irritation: a large piece left in one rabbit gave no trouble. It does not furnish a good culture medium and protects raw surfaces while they heal.

Martin has used olive oil or carbolized oil. I believe one of his cases got up a purulent peritonitis and died. Some operators use carbolic acid in the belief that it forms a thin protective layer of coagulated albumin which becomes entirely absorbed after the part has healed. What results are obtained by this method I have not been able to find out in the literature at my disposal.

Jonnesco, after a total abdominal hysterectomy for double pus tubes, isolated the abdominal from the pelvic cavity by suturing the pelvic colon to the perivesical peritoneum.

Regnier, at the International Congress of Surgery, 1900, counseled that after a total hysterectomy for cancer the pelvis be closed off entirely by suturing the vesical peritoneum to the pelvic and rectal.

Quenu advocates peritonization or covering all raw surfaces with peritoneum. Whenever there is a raw surface he moves or transplants peritoneum to cover it.

Senn has shown that peritoneum may be transplanted and will live.

In performing a double salpingo-oophorectomy it has been the practice of some operators to leave the uterus behind. This organ in such cases is almost invariably a focus of infection and a stimulant to the formation of adhesions.

Oastler, in a review of a number of cases performed at Roosevelt Hospital and examined from one to several years afterward found that it in no way prevented any of the disagreeable symptoms of the menopause, but on the contrary caused a number of new symptoms by becoming retroverted and adherent.

Raising the various organs by suspension, while it does not prevent the formation of adhe-

sions, will frequently abort their ill effects. Salt solution in the belly cavity, by floating up the intestines, may help somewhat. Lately, in connection with the above I have been keeping the foot of the bed raised for the first twenty-four hours, and then for fifteen minutes every hour. This and the production of early and continuous peristalsis somewhat after the method recommended by Byford, has been my treatment. Byford gives 3iv Fld. ext. cascara two hours before operation and then dram doses of mag. sulph. every hour after patient wakes up, and a high glycerine (3iv) and water (3ii) enema every two hours, beginning eight hours after patient wakes up. He moves the bowels every day afterward with mag. sulph. and enemas.

Animal experiments have shown that peristalsis will tear out sutures and separate adherent surfaces.

In conclusion I would state it is my belief that primary cases with a pus focus should all be laparotomized. That in cases of post-operative adhesions a thorough course of medical treatment should be given, including massage, before asking the patient to submit to the uncertain results of a second operation.

Lastly, that more detailed information be given as to the remote results, so that we may obtain a more accurate knowledge of the respective value of each form of treatment.

BIBLIOGRAPHY.

- Thompson. *Centralbl. für Gynak.*, No. 5, 1891.
 Senn. *Experimental Contribution to Intestinal Surgery*.
 Walthard. *Correspondenz Blatt für Schweizer Aerzte*, p. 513.
 Turck. *Medical Record*, 1900, p. 207.
 Van Stockmer. Quoted by Coe, *N. Y. Journal Gyn. and Obstet.*, May, 1893, p. 387.
 Kelly. *Operative Gynecology*, p. 494.
 Bissell. *Am. Journal Obstet.*, July, 1903, p. 37.
 Turck. *Medical Standard*, Chicago, June, 1903.
 Coe. *N. Y. Journal Gyn. and Obstet.*, 1893, p. 387.
 Reed. *Am. Journal Obstet.*, August, 1903, p. 154.
 Vineberg. *Trans. New York Obstet. Society*, February 10, 1903.
 Pauton. *Northwestern Med. Journal*, April, 1903.
 Clark. *Am. Gyn. and Obstet. Journal*, April, 1900.
 Mallett. *New York Med. Journal*, August 26, 1899.
 Polano. *Centralbl. für Gynak.*, 1901, No. 39.
 Ziegenspeck. *Massage in Diseases of Women*.
 Montgomery. *Therapeutic Gazette*, November 15, 1900.
 Ill. *Am. Gyn. and Obstet. Journal*, September, 1900, p. 213.
 Ward. *Am. Journal Obstet.*, June, 1901.
 Baum. *Journal Am. Med. Association*, 1894, XXIII, p. 240.
 Morris. *Trans. Am. Assoc. Obstet. and Gyn.*, Vol. IV, 1891, p. 128.
 Morris. *Medical Record*, May 17, 1902.
 Jonnesco. *Rendus Soc. Chir. de Bucharest*, March, 1900.
 Regnier.
 Quenu. *Rev. Chir.*, February 10, 1901.
 Senn. *Experimental Contribution to Intestinal Surgery*.
 Oastler. *Am. Journal Obstet.*, New York, 1901, XLIV, 145.
 Byford. *Am. Gyn. and Obstet. Journal*, April, 1900.

Discussion.

DR. W. MADDREN: There are so many questions brought up by this paper that in discussing it, it is hard to tell where to begin or what to say. I think the Doctor's paper is a very good one, and brought out a good many facts in regard to the condition. I do not criticize his paper at all. The recommendations that he makes are good.

Of course, in operative cases we all aim to prevent adhesions by the various methods that he has described, particularly the covering in of the exposed points and the use of artificial means, such as the membrane, etc., but there are many cases where you can not get enough peritoneum to do that, and the other tissue may not be available. He makes a good point about the closing in or shutting off the lower pelvis in these cases. I think that a good scheme, and I think we all try to do that in certain circumstances. *

We find that we frequently have to operate for adhesions. I have had to operate for intestinal obstruction from adhesions following simple ovariectomies, where there was originally a plain simple operation for ovarian tumor done by first rate men, and I found omental and intestinal adhesions and complete intestinal obstruction following from such a simple operation as that. I do not think we operate too often for intestinal adhesions. I do not think we operate often enough, and generally not early enough. It is very common to find intestinal adhesions that do not produce serious symptoms, if they are high, as the Doctor stated. If they are low down in the pelvis they can be diagnosed from the symptoms or from the examination, but often in autopsies, where patients have died from other causes, we find intestinal adhesions that are quite extensive, that have perhaps occasioned only a minor amount of trouble.

DR. W. E. BUTLER: I think we should divide the adhesions into two classes: Those in which we already have adhesions and reformation of these old adhesions; and those in which we operate on a virgin field. In the case of old adhesions we must necessarily bring in some new membrane or some new process to cover up the raw surfaces. That can only be done by the peritoneum or the Cargyle membrane. In the few cases I have seen it seems to answer the purpose very well.

The principal class of cases, I think, is where we have a virgin field—that is, where there are no adhesions at all, such as an operation for sim-

ple cystic ovary, a slight attack of appendicitis, retroversion, etc. In such cases appliances to keep the wounds dry, preventing adhesions from exposure of the intestines, come in very nicely.

I wish particularly to bring up to-night a new device, practically a modification of the rubber dam I presented some time ago—that is, a combination rubber dam with a Turck's water bag. After it is placed in position hot water can be forced in with a syringe and tied finally and clamped off. That provides for keeping the intestines warm. The dam keeps back the intestines, thus preventing their exposure and consequent adhesions. It does away entirely with the use of gauze in the peritoneal cavity.

DR. J. O. POLAK: I do not know how to prevent adhesions, and I think that the Doctor's summary is about right: Local treatment—time—and possibly operation will do about all that can be done for these adhesions when they occur.

One point has impressed me. Take a streptococcus infection, such as we have post partum, and we may subsequently open these cases, no matter how severe their primary inflammation has been, and it is surprising to see how few adhesions there are. Or take a mixed streptococcus and staphylococcus infection, but as soon as the colon bacillus or the gonococcus enter into the cause of the inflammation, it is of a very different character, and we get diffuse adhesions. That, nevertheless, does not explain to me why a virgin peritoneum opened for a simple cyst of the ovary or retroversion of the uterus should so frequently become the seat of the extensive adhesions, and I think that carrying out the principles that Ward set down in his paper a year or two ago, which is simply a summary of all that has been written on the subject of adhesions post operative, and their prevention, is about all that we can do. Personally I do not believe in putting a bag or dam or gauze or any of these things in the abdomen, if we can help it. It is surprising how the intestines will behave after two or three minutes in the Trendelenburg position, if you put the patient in that position early enough, and with the abdominal muscles relaxed. You do not have to handle the intestines; they keep out of the way, except in those cases where everything is bound down.

I think there is some advantage in this rubber dam combination of Dr. Butler's, if we can get the guts back, but the cases in which we want to use it most are the cases in which everything is bound down in the pelvis, and we can not put the

dam in until we have everything broken up, and frequently pus is spilled and the intestines handled before this can be done.

DR. R. L. DICKINSON: The subject is a large one and was very ably handled. Remember how wonderfully the peritoneum takes care of those adhesions that follow a gonococcus infection. Nothing is more astonishing than to see masses reaching to the navel as big as two melons—and as hard as three—melt away and disappear in a few weeks. We place these exudates in three classes: Either they disappear entirely, or partially, or end in suppuration. In consultation work in cases of pelvic peritonitis it is difficult to persuade the general practitioner that this thing, if you give it time—always months, possibly a year or two—will entirely disappear. Treatment will do good, but time is the important element. The general practitioner is afraid of pus tubes, he wants them taken out. He does not see as we operators do, how the contents become sterile. He is afraid the big round mass on one side must be an abscess sac, it seems so perfectly round, clear and distinct. We have all of us opened down on something that was thought to be a globular, deep tubo-ovarian abscess, and found loops of bowel glued about a nearly empty tube.

A bad class of adhesions are those around the appendix, and the most truly abominable adhesions are those around a fecal fistula, than which I think one dreads nothing more.

That a great number of adhesions may clear up is shown by a case of this kind: A second laparotomy was done because of the persistence of a large mass (the first laparotomy being for a simple pus tube). Reaching nearly to the navel was a matted bowel with adhesions the thickness of one's hand. I do not exaggerate when I say that the adhesions were over one-half inch thick, infiltrated, edematous, much of the color of plaster of Paris, and of the consistency of chamois leather (you might say, eight or ten layers of chamois leather laid together), but not simply soft fibre as we see it about an appendix. Microscopic examination showed nothing malignant. Such infiltration looked malignant. It was nothing but an exceedingly thick and tough infiltration. The patient's abdomen was closed up again. She made a perfectly good recovery and cleared up. The case was not mine, I simply saw the laparotomy.

During the walking weeks after laparotomies we do not watch our cases critically enough. A patient came into my office the other day. Both Dr. Poncrov and I examined her, and said there

appeared to be recurrence such as Dr. Hyde describes—the resected ovaries seemed distended again. But we tried treatment with ichthyol before operation. Three weeks' treatment has cleared up her pains, and her soft exudate has disappeared. One sometimes sees a swollen, tender abdominal scar two or three months after operation. Why not a tender, swollen stump inside?

I think no case of relatively new adhesions should be given up until the treatment which has been laid out by the writer of the paper has been carefully pursued. Time does a great deal. It is the only element the author in his paper has not sufficiently emphasized.

DR. J. O. POLAK: I should like to ask Dr. Dickinson if I understood correctly, with the tube as the infector of pelvic peritonitis, to leave these cases absolutely alone, and that the tube as well as the peritoneum would get better?

DR. R. L. DICKINSON: As is the general practice, with a well-defined abscess, I always open and drain, but operation on a great many exudates with the tube in the middle of them show very little apparent trouble in the tube and a very great deal of exudate. Such cases clear up without laparotomy.

The great majority of these cases get well with crippled tubes, their outer ends sealed, and the woman is sterile, with a few adhesions or with none. The most noteworthy case of multiple reinfection I have on record had six active attacks of pelvic peritonitis. Her husband wandered freely, and doubtless reinfected her repeatedly. She had a solidly matted pelvis which I did not long to touch. She is now in perfect general condition, with no jot of local discomfort.

DR. C. R. HYDE: The use of massage rather interested me. I had an experience of a month in a clinic in Berlin, where there were a great many patients. Perhaps it might interest you, to state that the examining couch was 18 inches high, and of the usual length. The woman was placed on that, with anywhere from eight to ten students around, and the treatment continued for twenty minutes. Usually the woman was quite uneasy at the end of the massage and in pain. I watched these cases there for a month and never saw any results. Strassmann and the others diagnosed adhesions—a thing I think exceedingly difficult at any time.

As regards the Cargyle membrane: I tried it in four laparotomies. The only thing I can say is this: How is the operator to know whether the Cargyle membrane has done any good, unless he should later section the woman. He will sim-

ply have to take it for granted that the membrane did do its work and prevented the formation of adhesions.

I always remember Thomas Addis Emmet talking about his cases, and the remark about "taking time" applied to him. He would spend considerable time treating some of his cases before he did a cervix, especially if there were an exudate on either side. He claimed no cervix should be done until the exudate cleared up. He found in a great many cases trouble would follow if the cervix was repaired in the presence of an exudate, so he treated and tamponed and douched them, always giving the douche with a Davidson's syringe.

DR. G. McNAUGHTON: There was one class of cases the Doctor did not mention in his paper. They are very interesting, and I believe that quite a number of them get well and get along without operation—that is, extensive fine adhesions due probably to a tubercular process. I believe we have tubercular peritonitis more frequently than we suppose, and that many cases go on without operation and recover, and perhaps as a result of that the adhesions about some of these cases are from previous tubercular process.

As to massage of the pelvis, it seems to me that that would be one of the best ways in the world to strengthen these adhesions. I had a little experience in that sort of treatment and gave it up in short order, because I was getting into lots of trouble, and I am sure I did my patients positive harm. If you wish to develop a muscle, exercise it. If you wish to develop and make more tender and increase the strength of an adhesion, it is a pretty good way to do it.

Many of these women are anemic and their general condition is below the normal standard. Sometimes slight efforts may pull off a patch of intestine with the peritoneum, and it seems we are taking a great many risks, when we can not see the peritoneal surface, by a forcible attempt to break up adhesions. I think that Emmet's scheme of extensive medical treatment is very good, because it gives time. Twenty or twenty-five years ago the physician's office was filled with these cases of pelvic exudates. He placed a tampon in each one indiscriminately, and did the same thing right through the office hour. He had a tremendous amount of work and some pretty bad results, and the fact that the treatment was not satisfactory induced the tremendous amount of operative work that followed.

I have never seen adhesions such as Dr. Dickinson described. They must have been recent ad-

hesions. I can not imagine that was an old affair. I should question their being three months old, but perhaps three or four days. We see that in our cases of appendicitis, where the exudate is very thick—sometimes like chamois. I doubt if they would remain so long in the peritoneal cavity. It may be I have never seen it.

The question of peritoneal adhesions is the whole subject of gynecology, it seems to me. That is what we are at most of the time. Occasionally you see a cystic ovary with no adhesions, but usually there are more or less adhesions, and the symptoms and suffering are produced by these adhesions. It has been the custom of Dr. Palmer and myself to introduce a saline solution after operation. I believe that tends to prevent adhesions and it diminishes shock.

Should like to say something in the way of a table for operating. Most of the tables used in operating rooms are of magnificent metal and glass, but they are cold and miserable things to put a patient on. A rubber bag quilted (something like a Kelly pad), so as to retain the fluid, and warm water placed in the pad and put on the operating table makes a desirable addition to the operating room.

DR. H. C. KEENAN: As I stated in the beginning, the principal object of my paper was to bring out a certain amount of discussion. I also wanted to bring out the fact that no one method for treating these adhesions is sufficient, and that particularly in post-operative adhesions, the medical treatment should always be given a very good chance. I rather expected to hear some discussion on the subject of leaving the uterus when we take out pus tubes. I know some operators advise that and some do not, but I suppose my paper covered such a wide area and so many little points were taken up, it was impossible to look into all of them.

PROCEEDINGS OF SOCIETIES.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS.

STATED MEETING, OCTOBER 20, 1903.

The President, CHARLES N. COX, M.D., in the Chair.

The meeting was called to order and the minutes of the previous meeting read and approved.

APPLICATIONS FOR MEMBERSHIP.

Applications for membership were received from the following:

Henry D. White, 179 Eighth Avenue, P. & S., N. Y., 1887. Proposed by Wm. S. Hubbard; seconded by O. A. Gordon.

Archibald D. Smith, 53 Jefferson Avenue. Proposed by George R. Fowler; seconded by Russell S. Fowler.

David R. Lloyd, 1516 Beverly Road., U. & B., N. Y., 1901. Proposed by G. L. Buist; seconded by W. C. Wood.

Frank L. Cochrane, 704 Sterling Place, P. & S., N. Y., 1900. Proposed by G. L. Buist; seconded by W. C. Wood.

Donald Stuart MacNaughton, Kings County Hospital, L. I. C. H., 1903. Proposed by Geo. MacNaughton; seconded by J. M. Winfield.

ELECTION OF MEMBERS.

Dr. B. Onuf, Sonyea, N. Y., and Jas. T. Hanan, Montclair, N. J., were declared elected to Corresponding Membership.

A memorial was presented by the President on behalf of the Society to Senator James H. McCabe, M.D.

THE PRESIDENT: Senator McCabe, it is with very great pleasure that I, as President of the Medical Society of the County of Kings, express to you on behalf of the Society, our high appreciation of your assiduous and successful efforts in securing the passage of the bill exempting us from taxation. By this means you have relieved us of an unfair exaction, thus enabling us to appropriate to the betterment of our library, which is already one of the largest and most valuable medical libraries in the United States, upwards of one thousand dollars annually, which heretofore has been diverted to the payment of taxes upon medical improvement and advancement.

This address is made on the part of an organization that has for its purpose, not the personal benefit of its members, but the spread and advancement of medical knowledge for the benefit of the public.

You are entitled not only to the thanks of this Society, but to the thanks of all medical societies in the State, who now have or shall maintain a medical library worthy of the name, and also the thanks of the whole people of the State of New York. Now, therefore, in token of our appreciation, allow me to present this testimonial, which has been given to you by unanimous vote of this Society, and with it goes our best wishes for your continued success, whether in public or private life.

SENATOR J. H. McCABE, M.D.: Mr. President and Gentlemen, I feel greatly pleased at the recognition this Society of Kings County has given me. I have been in public life about three years and have introduced praiseworthy measures in the Legislature, but whatever I did, unfortunately I always received abuse—some one would take exception to the Bill. This is the first time I have been credited with any good I have ever done.

It is unfortunate, but men in public life, when they do attempt good legislation, some one always asks the question, "Where does he come in?" As if he is always looking for something for his own pocket, besides meritorious measures.

I do not deserve all the credit for the passage of this Bill. Senator George Greene, Chairman of Taxation Retrenchment, and the members of the Committee, should receive great praise for their efforts. Their services should always be appreciated by the members of this Society.

When the Bill was reported I had great doubts about its future, for the reporting of a measure on the floor of the Senate is much like the birth of a child—you cannot tell what is going to happen to it before it reaches its maturity. There are many pitfalls in the Senate; in fact, it is known as the Legislative morgue.

I accept this gift, and it will always be cherished by me and mine, especially as it has come from my own medical brothers.

SCIENTIFIC PROGRAM.

1. *Presentation of Specimen of Radium.* By Dr. G. G. HOPKINS.

2. Paper: *Urinary Tube Casts.* By THOMAS C. CRAIG, M.D. Discussed by Drs. Van Cott, Murray, Wood, Emery and Bartley.

Adjourned.

WM. S. HUBBARD,
Secretary.

THE BROOKLYN SURGICAL SOCIETY.

REGULAR MEETING, JUNE 4, 1903.

The President, W. M. FRIEND, M.D., in the Chair.

TALIPES-EQUINUS; OPERATION; CURE.

DR. G. R. FOWLER presented a patient, a young woman, who entered the Methodist Episcopal Hospital in February last with a pronounced and aggravated talipes-equinus, the result of an anterior poliomyelitis occurring in infancy. The deformity, as it then existed consisted of the

characteristic elevation of the heel from spastic shortening of the gastronemius and subluxation forward of the astragalus.

The proposition at that time was how to restore the usefulness of the foot without impairing the motions at Chopart's tarsal joint. This was accomplished in the following manner: First the Tendo Achilles was split lengthwise, and then from each end of the split a transverse cut was made, at the lower end of the split to one side and at the upper end of the split to the other side, the usual tendon splitting method of lengthening the tendon instead of making a direct cross section. The lengthened tendon was then sewed together at the proper point, that is to say at the point estimated to permit a full restoration of the foot. A curved incision was then made upon the outer side of the foot with its middle as nearly as possible opposite the center of the displaced astragalus. A flap was turned back, and both the astragalus and the scaphoid exposed. A small opening was then chiselled first in the astragalus and afterward in the scaphoid, an opening about $\frac{5}{8}$ " square being made in each and through these openings a sharp spoon was introduced, and slowly and carefully the entire cancellous structure, so far as it could be removed, was scraped out from the interior of the astragalus and to some extent from the scaphoid. The foot was then quite easily restored to position, the forcing of the foot in a position of dorsal flexion resulting in the crushing in of the shells of both the scaphoid and the astragalus, in such a way that the foot became entirely restored; in fact, over correction was obtained.

The foot was then put up in plaster of Paris, and the pressings allowed to remain for ten days. They were then removed, when it was found that union had taken place, both in the incision made posteriorly for the purpose of lengthening the tendon, and in the anterior curved incision for gaining access to the astragalus and scaphoid.

The result was remarkable in every way, much better than he expected. There exists, of course, at the present time the usual broadening of the sole of the foot, naturally acquired by walking for a long time upon the ball of the foot. The speaker had never been able to accomplish so good a result as with the ordinary removal of bone, and could not help thinking that the method of removing the interior of the bone, leaving the shell, has everything to do with the good result. He thought Ogsten of Aberdeen, deserves a great deal of credit for having devised an operation, of which this is an extension.

The skin incision for splitting the tendon is not made in the line of that in the latter, but to one side. This tends to prevent union of the line of incision with the tendon, during the reparative process.

RECURRENT CARCINOMA OF BREAST, TREATED WITH THE X-RAY.

DR. W. F. CAMPBELL presented a patient who, twenty months ago, came to him with well-marked carcinoma of the breast. It was neither a particularly late nor extremely early case. She had noticed a tumor for three months, and there were some enlarged glands along the border of the pectoralis major and in the axilla. There were no glands palpable in the infra or supraclavicular space. He did a Halstead operation and she went out of the hospital well in about ten days.

A year afterward she came back, and there was a return of the carcinoma along the scar and infiltration of the glands in the supraclavicular space about the size of an orange. He removed the nodules of the carcinoma along the scar and subjected her to the X-ray. She has been given X-ray treatment for about eight months, and with marked results. The tumor in the supraclavicular region has been reduced about one-third. Of course, all of our X-ray work in carcinoma, with few exceptions, is in the experimental stage. There is nothing that we know definitely at the present time in the treatment of these deep-seated tumors, but we do know that the X-ray will cure superficial epithelioma and lupus of the skin, but outside of that the work is experimental. As to the outcome, he had no doubt but that the case would terminate fatally.

He showed also the results of the X-ray treatment in regard to tanning of the skin. A remarkable point about this case is the fact that the patient has been able to take the treatment three times a week for eight months without any deep burns being produced. There is a tanning of the skin, the same as you would get with sunburn, simply a bronzing of the skin. The patient was unable to put her collar around her neck when she first came. She is now able to do so with ease.

One of the marked features of the X-ray on pain is the subsidence you get after three or four treatments, and she has been glad to take the X-ray treatment simply for the effect it has on the pain. The exposure is made for about ten minutes with the tube ten inches away from the surface every other day.

CARCINOMA OF THE JAW, TWO YEARS AFTER
SECONDARY OPERATION.

DR. W. F. CAMPBELL presented a case three years after the secondary operation was done for carcinoma of the jaw. The first operation consisted in removal of the jaw with dissection of the glands of the neck, but in three months there was a recurrence of the growth in the jaw. In the second operation he dissected out the floor of the mouth with the glands of the neck, and it is three years now that the patient has remained well. There is no evidence of recurrence at the present time.

MARKED HYPERLEUCOCYTOSIS SUGGESTING AB-
DOMINAL SUPPURATION; RECOVERY WITHOUT
OPERATION.

DR. RICHARD W. WESTBROOK reported the case of a young girl of ten who was referred to him with the diagnosis of appendicitis, and was thought to require operation. She had always been well up to the present attack. On October 17, 1902, she was taken suddenly with pains in head and abdomen. She vomited on the day following. The bowels were moved with difficulty, using large doses of laxatives.

Four days after the onset of the attack, when she was admitted to the Hospital, she was found to be a well-nourished child, her expression showed considerable suffering, and she was vomiting. Examination showed tenderness over both iliac regions, most marked on the right. There was a good deal of muscular resistance on abdominal palpation most marked along the right rectus muscle, but it was not the hard and constant rigidity of peritonitis. There was moderate distention, and no tumor. Her temperature was 100.8°, her pulse 126, and respirations 28. A blood count showed a leucocytosis of 28,800. A second count made a few hours later showed 28,600 leucocytes. In spite of the high leucocytosis, the tenderness and the marked abdominal resistance, he refused to open the abdomen in the absence of tumor and the well-marked rigidity of peritonitis, and withheld a diagnosis, although he suspected the appendix. The following day conditions were about the same, temperature 102°, pulse 130, the bladder distended and requiring catheterization, and the leucocyte count at noon being 27,100, and 24,800 at 4 P. M. There was the same abdominal tenderness, but no persistent rigidity. On the third day the leucocytosis reached 35,500, but pulse and temperature were lower and tenderness less. On

the fourth day, two leucocyte counts showed 25,300 and 24,000 respectively. On the fifth day her leucocytes were 30,000, with general condition improved. On the sixth day her temperature rose again to 101.5° and her pulse to 120, and her leucocytes to 39,100 and 42,100. There was tenderness on pressure in the middle line below the umbilicus, running into the right iliac fossa, more marked than on the previous day, but no mass was determined. The entire right rectus muscles gave slight resistance. Patient was bright and hungry. On the seventh day her leucocytes reached still higher, to 47,900, and there was marked tenderness by abdominal and rectal touch in the same locality.

Three days later still, or 18 days after the onset of the attack, she was running about and feeling perfectly well, although her abdomen was still moderately distended and "doughy." Her leucocytosis was then the lowest observed, 19,000, and three days afterward she returned home. Her family physician informed him that she was perfectly well for several months after her return from the hospital, and as he has not been called to see her since, presumes that she is still well at the end of seven months.

The hyperleucocytosis in the case was a marked, and might have been a misleading symptom, had too much dependence been placed upon it. There was no pneumonia, nor any suppurative lesion found outside the abdomen to account for it. There could have been no peritonitis unless of very limited extent, and the stools gave no indication of an ulcerative lesion within the lumen of the bowel. When first seen she was certainly quite ill, and all signs pointed to an abdominal difficulty. Typhoid could be excluded with such a high leucocytosis, and the speaker was strongly of the opinion that whatever lesion was present would prove to be surgical. Yet, adhering to the rule he had always followed, never to open an abdomen in an acute inflammatory case unless positive rigidity of tumor was present, he was not misled by the high leucocyte count. The child was in no condition to warrant an exploration not absolutely indicated. What pathological condition she was suffering from he did not know.

The leucocyte counts were made by two men of experience. It was a true leucocytosis, *i. e.*, an increase of the polymorphonuclear leucocytes. A higher leucocyte count in children than in adults is normal. Holt states that a count of 20,000 or over may be of considerable assistance in the diagnosis of appendicitis in children. The high leucocytosis of the present case, however, will cause

him to be cautious in ascribing much value to this symptom alone in abdominal conditions in childhood.

CYST OF THE PANCREAS; OPERATION; CURE.

DR. RICHARD W. WESTBROOK said that the literature of the surgery of the pancreas is still very small, and it is desirable to report every case. The patient is a widow, 53 years old, with no history of trauma or gall-stone disease. For nearly a year before operation she had suffered with flatulence, constipation, and epigastric distress. This increased to actual epigastric pain, vomiting, and inability to retain solid food for seven months before operation. She lost 25 to 30 pounds in weight. No jaundice had ever been present.

The speaker's examination showed a smooth, rounded, symmetrical mass lying nearly in the middle line above the umbilicus, dull upon percussion, with the dullness extending into that of the liver, and in size about as large as a child's head. The mass was tense, and fluctuation could not be positively made out. It was not tender. The patient's symptoms were clearly due to the pressure of the mass upon the surrounding parts. She was confined to her bed, and very weak for want of food. A diagnosis of pancreatic cyst was made, with the reservation that it might possibly prove to be a hydatid cyst of the liver, which may produce at times a quite similar hemispherical bulging in the epigastrium. An examination of the stools showed no undigested muscle fibre, nor excess of fat; nor is the gland tissue ordinarily so seriously involved in cyst of the pancreas as to produce these symptoms. The patient, too, had been subsisting on liquids, which would be likely to obscure these tests. There was no glycosuria. The operation of drainage of the cyst was advised as offering the only hope of cure.

On April 16, 1902, an incision four inches long was made in the medium line above the umbilicus. The tumor was exposed, was found firmly adherent to its surroundings, and to present above the stomach, pushing forward between it and the liver. The majority of these cysts present below the stomach, between it and the transverse colon. The cyst may also push out between the layers of the transverse meso-colon, when the colon will be found extending across the front of the cyst, very much as in cyst of the mesentery; or it may bulge downward to the lower layer of the transverse meso-colon and push both transverse colon and stomach upwards. These different locations of

the tumor will produce differences in the percussion note around it, which explains in this case the continuity of the dullness of the cyst with that of the liver, simulating hydatid cyst of the liver.

The tumor was surrounded with gauze pads, packing off the rest of the abdominal cavity, and a large trocar was plunged into it, evacuating over two quarts of fluid. The cyst was then freely opened, and its wall found to be moderately thick, and to extend farther than the finger could reach deeply backward toward the vertebral column. From one-fourth to one-third of the cyst wall was freed from its bed of adhesions, drawn up through the incisions, and cut away. Its cut and bleeding edges were then whipped around with a running catgut suture, and then puckered up and stitched to the parietal peritoneum of the lower portion of the abdominal incision, and a large drainage tube of glass left in it. The gall-bladder was palpated and found to contain several small stones which were left untouched. The main portion of the incision was closed with silkworm gut sutures. The operation lasted thirty minutes.

There was a free discharge of yellowish fluid through the drainage tube later, which was received into a rubber bag. A rubber drainage tube of smaller calibre was later substituted for the glass tube, and the discharge caused the skin to become much excoriated and of an unhealthy, purplish hue, in spite of the free use of ointments. The pressure symptoms were immediately relieved by the operation, and the patient gained strength progressively, and began to take solid food. A discharging sinus remained for six months, and has remained solidly healed during the eight months which have since elapsed. The patient is well, and has more than regained her previous weight loss.

The cyst contents were of a cloudy amber color, alkaline reaction, and of a specific gravity of 1.019. It yielded a solid coagulum of serum-albumen, and gave a distinct reaction to tests for bile coloring-matter. It did not digest starch (as is common in these old cysts), but it emulsified oils. The microscope showed numerous leucocytes, a few blood cells, and cholestrin crystals.

Cumston states that the fistula after drainage of the cyst will not always close, and cites one case where it was open after three years. The speaker had been unable to learn of any other case in the literature where the cyst did not close. He also says that recurrence may take place. This more probably indicates the formation of a new cyst in the degenerated pancreatic tissue. Both

these possibilities are so remote as to contraindicate the great risks of total extirpation of such a deep-lying cyst in a weakened patient. In very exceptional instances the operation of extirpation is feasible; but even partial extirpation of the sac is attended with high mortality, as against a comparatively small mortality in incision and drainage.

THE BROOKLYN PATHOLOGICAL SOCIETY.

HENRY G. WEBSTER, M.D., Editor.

The 441st Regular Meeting of this Society was held at the Building of the Medical Society of the County of Kings, 1313 Bedford Avenue, on Thursday, May 14, 1903, at 8:30 P. M.

The President, DR. ARCHIBALD MURRAY, was in the Chair, and about 30 members were present.

PROGRAM.

DEMONSTRATION OF RUHEMAN'S URICOMETER,
DR. TRACY E. CLARK.

CEREBRAL TUMOR, ANALYSIS OF CASE, DRS. H. P. DE
FOREST AND E. G. ZABRISKIE.

MISCELLANEOUS SPECIMENS, DR. W. N. BELCHER.

DR. CLARK'S demonstration depending for its interest on the instrument and drawings, is omitted.

Discussion.

DR. H. P. DEFOREST: I should like to have Dr. Clark supplement his paper by giving us a brief summary of the practical application of this method. The testing for uric acid, in my own experience, has been so difficult and took so much time, trouble and fussing, that besides a few attempts in a laboratory, I have never done it. If we have here a method which is within the reach of the ordinary practitioner, I am very glad of it, and I should like to know a little more about its practical applicability—just what its real value is, and in what class of diseases it may be depended on to give valuable indications.

DR. A. MURRAY: I have tried this affair, and I think I shall stick to the modified Hopkins method for making uric acid estimations. The mere working of the test—the end reaction—is not difficult to recognize, and the mere making the test is not difficult, but as Dr. Clark says, all these drops and exact measurements and so on make it rather inexact. I had one experience

where the amount by Hopkins method, for instance, was a certain number of grains, and by this uricometer I got three times as much uric acid.

DR. T. E. CLARK: I think there are others here who are much better able to discuss the different points than myself. The use of this instrument does not come in connection with disease. It comes in more particularly in that class of people who suffer from uric acid diathesis, lithemia, and such troubles.

DR. H. P. DEFOREST: May this instrument be depended on to give consistent readings, so that improvement under treatment may be noted?

DR. T. E. CLARK: There is a good deal of variation in the amount of uric acid eliminated even in a state of health. One advantage this instrument has over those methods of using silver nitrate solutions is that silver is always precipitated, and the error is thus increased in all subjects who are taking a treatment containing iodides. This has been emphasized by Haig.

CEREBRAL TUMOR, ANALYSIS OF CASE.

DR. H. P. DEFOREST: With the co-operation of Dr. Zabriskie, I am able to present before the Society to-night a rather complete report of a brain lesion, which occupied my attention about a year ago. If only we had some way of determining the exact condition in the brain, as we have for determining whether typhoid toxins are present in the blood, or whether the malarial parasite is present, matters of diagnosis regarding the brain and the lesions indicated by various localization symptoms would be very much simplified. As it is, lesions inside the skull like lesions inside the abdomen are oftentimes very obscure.

In this particular case, the diagnosis, although it was ultimately made before the autopsy, which is always something of a satisfaction, was obscure at the start, and it was only after a considerable amount of careful study, and by a system of exclusion, that we were able to arrive at the conclusion, which was verified by the pathological findings.

The history of this patient is briefly as follows: Mr. C. H. B., forty-eight years of age, who had for many years been in the United States Custom House, a man of exemplary habits, of a regular mode of life, free from any specific or tubercular history; indeed, who, up to the morning of his seizure had every reason to believe that he was in as good health as any one of us, arose on the morning of June 5, 1902, and

started out to a news-stand across the way to get the morning paper. He bought the paper, felt perfectly well, came back to the door of his house, put his latch key into the door, and suddenly was seized with a convulsion involving only the muscles immediately below the chin and above the sternum. This group of muscles was the first that was affected with this state of twitching and spasm. He lost the power of speech; he was able, however, to use his hands, was able to think clearly, was in all respects normal, so far as he could determine, except that the muscles of his throat were in a state of continual spasm, which lasted for perhaps three or four minutes.

His wife saw him standing there at the door with his key in his hand, and evidently having some trouble with his throat, and opened the door for him. He was utterly unable to speak to her, but was able to walk up stairs and lie down in his bed room. In the course of five or ten minutes these symptoms had entirely disappeared, but an hour later, without any warning or apparent reason, he had what his wife described as a regular fit; he became unconscious, he frothed at the mouth, he had a general convulsion, much resembling, from the description she gave me, those convulsions which we are in the habit of regarding as of the epileptic type. She became very much alarmed, and sent at once for her son-in-law, who was a physician, and for a near neighbor, who was also a physician, and by the time these two gentlemen reached the house the convulsion was over. Following that was a period of deep sleep with stertorous breathing, and the usual condition that we see in a post-epileptic attack. He recovered, however, and when I saw him an hour later he had become rational again, was able to tell everything which had happened, except this period during the deep sleep and the general convulsion.

His son-in-law had taken a sample of the urine, which he had passed that morning, and which had been separate, and he and the Doctor who was with him examined that urine and said that they found a trace of albumin. I took a specimen of the urine, the next that he passed, and examined it, and found that the urine was clear. It was of acid reaction, 1018, no sugar, no albumin, $8\frac{1}{2}$ gr. urea per oz., chlorides normal, peptones absent; there was no deposit on standing, and with the exception of a few epithelial cells, there were no morphological ingredients present. I do not know whether a transitory albuminuria was present or not. He remained well until June 11, when suddenly another attack occurred, this

time at night, and much more severe. I spent the night at the house, and had an opportunity this time of seeing him myself in this attack. I found that his heart was feeble, but normal. He was very much alarmed about himself.

In a convulsion of this type one naturally thinks of the possibility of uremia or of some toxine in the urine, so I made two more urinalyses. I was unable to exclude a possible kidney complication, I believe.

As he suffered from "Riggs Disease," and as the suppuration might act as a source of irritation, his teeth were all extracted.

June 15 he was more feeble in his movements and markedly depressed both in mind and body. He cried on the slightest emotion. His hand grasp was firm, and nearly as strong with the left hand as with the right. He walked well, but was apt to stumble if not very careful. That does not mean that he was unable to control his footsteps, if he paid attention to what he was trying to do, but if he should walk, as we ordinarily walk across the floor, he would be very apt to run against a chair or vary somewhat in his locomotion. Dr. Story had given him a tonic of quassia, gentian and citrate of iron.

He went back to business, and the cause of these symptoms remained more or less a problem. Up to this time he had had no localization symptoms whatever, and the attacks resembled those of ordinary epilepsy.

June 28 he had a severe attack of headache upon the right side. The following day it was a little more marked and became a little more general, but it started on the right side. These notes I made from day to day, so it shows the progress of the disease fairly well.

On June 28 a numbness began in his left hand, which was progressive and finally became complete. His left foot was somewhat affected, but he could still walk well. He said he was able to manipulate his feet perfectly well, but it felt as if they were surrounded by cotton. His tongue deviated somewhat to the left, but he could not draw his mouth to the left. The muscles of expression on the left side of the face were markedly flattened. Crying fits had become more frequent and uncontrollable. No marked convulsive seizure had come since the teeth were extracted, although mild attacks occurred from day to day. The probability or possibility of brain tumor was suggested, and iodide of potassium was advised, and I then arranged for a consultation with Dr. Browning and Dr. Story.

On June 29 Dr. Browning saw the patient with

me, and the notes which we made at that time were as follows:

He was seen at noon, and at that time when the doctor entered the room, the man burst into an uncontrollable fit of crying, and this the doctor informed me usually indicates an inflammation of the caudate nucleus. There was a marked impairment of the sense of touch of the hand and face. He was unable to move his fingers at all, but with his eyes closed was able to identify things placed in his fingers—he could tell a pencil or cane by the sense of touch. His muscular sense remained fairly good; he walked fairly well with a little steadying. The radial and cubital reflexes were equal on both sides, and so were the plantar reflexes. There was marked choked disk of the right eye, the outline was paler than normal, and the excavation filled up. Examination of the left eye showed a similar condition, but the examination caused him so much mental distress, crying, etc., that the examination of the left eye was less complete. The field of vision was a little constricted, the pupils were wide, but equal; there was no vomiting, his temperature was 99.6°, his pulse 65, respirations 18.

DR. BROWNING recommended that the solution of iodide of potash should be continued, but to begin with 20 drops and increase one drop with each dose. He suggested the giving of thyroid extract, 5 gr., with bromide of arsenic, $\frac{1}{50}$ gr., and increase each day until $\frac{1}{30}$ gr. was taken t.i.d.

The condition went on progressing, and on July 3 the paralysis of the left arm and leg was complete. He progressively developed marked mental depression, was duller than before, but could be roused upon being spoken to. He seemed contented to lie in bed, said he had no pain whatever, took what liquid food was given without objection and with no apparent fondness either for or against. He seemed to have lost the appreciation of what he was doing, and remained in that condition for a day or two more. Iodide of potash was increased a little more, adding each day 5 gr. at a dose.

At this time one of the most pronounced symptoms was his frequent yawning. On July 5 there was but little change. He was mentally clear, and appeared to have moved his leg voluntarily yesterday, but does not do so now. Then developed a symptom which was the most curious in the case. Whenever he would yawn he would move his arm. Every time he would yawn this paralyzed arm would come up and almost hit him in the face. When asked to move the arm he was unable to do it, but yawning would promptly

cause the moving of this left arm. He was now taking 80 gr. of the iodide t.i.d. and 10 gr. thyroid extract t.i.d. There was a slight tendency to constipation.

From this time on the condition became progressively worse. The paralysis became more and more marked, his hebetude became deeper and deeper. He suffered no pain, he had no further convulsive attacks, and the condition steadily, but slowly, became more grave. There was a possibility that there might be a tubercular infection—something in the nature of a tubercular meningitis. I had his temperature taken for the purpose of excluding that, if possible, and the chart remained but little elevated and did not reach 100° until July 5. From that time on to the 9th the temperature remained from 100° to 101°, and on the morning of the 9th began suddenly to rise. It rose during the night of the 10th and reached 106½° on the morning of the 11th, when death occurred.

The family fortunately were willing to have an examination of the head made, and the head was, therefore, examined in Dr. Browning's presence, on the afternoon of the day he died. The scalp and calvarium were normal—no evidence of any injury. The dura showed slight engorgement of the vessels and is adherent. The pia is markedly congested over the entire surface, no inflammatory exudate, but the brain appears unusually moist, and there is some excessive fluid in the cavity, i.e., in the skull cavity.

Brain.—On lifting the brain to remove it from the skull a small aperture broke open on the right side near the lower extremity of the fissure of Rolando, and from this there spouted out about three ounces of clear straw colored fluid, coming from what was believed to be a cyst, but which further examination showed probably was a dilatation of the lateral ventricle. Three ounces was simply an estimated amount. The brain was removed and placed in formalin solution and turned over to Dr. Zabriskie, who made a careful study of it and will tell you what he found.

The question of localization in this case, as you see, was practically out of the question. The question of operation was discussed by Drs. Browning, Story and myself. It was believed that it would be of little value, as it would be purely a guess as to where the lesion was located, and purely a chance as to whether operation would be of any material benefit. As the matter turned out we were glad that no attempt at active operative procedure had been attempted, because it would simply have precipitated the end.

There was no history of any hemorrhage, so

that was excluded. The temperature remaining low for so long a time practically excluded the possibility of tubercular infection. Indeed, all of the diagnosis was based on exclusion rather than upon any other means of diagnosis, and our belief was that the man had a tumor of the brain. That proved to have been the case, and the exact findings of that tumor will be told you by Dr. Zabriskie.

DR. ZABRISKIE: Several unfortunate accidents in the preparation of this case tend to make it necessarily incomplete, as the portions of medulla and pons were inadvertently destroyed, and therefore I feel that an apology is due the Society.

The scalp and calvarium were normal. Cura shows slight ingorgement, and not markedly adherent.

Pia much congested over entire vertex, but no inflammatory exudates were apparent.

Some excess of fluid in the cranial cavity. While lifting the brain, a small quantity of fluid escaped from an opening near the lower end of the right fissure of Rolando. This came from a cyst, involving the center of the tumor, and had extended to the cortex.

Externally there is a large mass seen occupying the anterior central, media and inferior frontal convolutions, the Pars Opercularis, Pars triangularis, and Pars Obicularis, where there are peculiar small folds of the cortex no doubt due to the pressure of the mass. The surfaces of the convolutions mentioned are flat and wide. In many places the markings have been entirely obliterated. The whole frontal lobe is much larger than the left and bulges outward. Several portions were removed and hardened rapidly to determine the nature of the tumor. It was found to be a rapidly growing gliosarcoma, made up of widely differing elements. The periphery shows masses of small glia cells crowded together, undergoing very active proliferation, while the center presents a lawless arrangement of larger and more irregularly shaped cells, quite like that of a sarcoma. Other areas have an arrangement of cells in the perivascular spaces, which suggests strongly a type of endothelioma. Many places of softening and necrosis are found, and while no cyst was observed, there is an area of softening extending to the lateral ventricle, and the fluid probably escaped by this means. What seems to be the true origin of the tumor is in the region of the ascending frontal convolution. Here large groups of cells, often spindle shaped, may be seen pushing in from the pia, into the cortex, and if this be the true origin we must call it a true sarcoma.

The frontal sections of the right hemisphere show the extent of the tumor. It involves almost the whole frontal lobe and extends posteriorly just behind the place of the Ammons horn. The more anterior sections show the diffuse nature involving the cortex and the underlying white matter. Behind the fissure of Rolando it begins to assume a more definite shape and is confined to the white matter. The Tangential fibres of Exner are from here on well preserved, and a little further back the tumor begins to have the appearance of being encapsulated.

There is some slight involvement of the external edge of the caudate nucleus.

I am very glad of this opportunity to bring up for discussion the use of the terms glioma and sarcoma. A tumor is called a glioma when there is a new growth of fibres and cells, or where either one predominate. If, however, the tumor is very rich in cells, and shows new formed vessels, etc., it is called sarcoma or gliosarcoma. Since all true sarcomata are connective tissue tumors, and hence of mesodermal origin, while, as yet, we are accustomed to consider neuroglia tissue as ectodermal, I think the matter should be put on a more definite basis and the classification made either from a morphological or histogenetic point of view. If we regard them from the latter, then we should never call a tumor a sarcoma, unless we can demonstrate its origin from pure connective tissue, or unless it is metastatic. Some recent investigations of Bitata in Chicago, however, would tend to show that neuroglia is really of mesodermal origin, arising from the walls of the capillaries, and if this can be confirmed, it would simplify matters very much.

As regards some of the symptoms, I think we can explain their sudden onset, by the nature of the growth, for small round cell tumors are always of more rapid growth than others. Why the first convulsion should be in the throat is rather obscure, as the bulk of the tumor seems to be above the pars opercularis, where the centers for the throat are situated.

The marked emotional state is supposed to be connected with lesions of the caudate nucleus, but here the lesion was very slight. I do not think we are justified as yet in making this conclusion for the evidence is as yet too meager. In going over the literature for the last few years, I find there is only one case of a lesion limited to the caudate nucleus, and there were no emotional disturbances at all, only depression and hebétude.

The movements of the left arm on yawning have been noticed several times, and described by the German writers as "Mitbewegungen." They

have been observed frequently in hemiplegias, in that peculiar psychological condition between waking and sleep, or as we sometimes say, half-awake. Attempts to produce these movements in the hypnotic state have always failed, and as yet we have no adequate explanation.

The absence of astereognosis is also interesting because there was marked impairment of tactile sense, and still he could describe perfectly, objects placed in the left hand. The centers of this sense are supposed to be layers of small ganglia cells just beneath the layer of large triangular cells, and it is most probable that they were preserved.

SPECIMEN: CYSTIC KIDNEY.

DR. W. N. BELCHER: This history of this specimen I am unable to give you, except that this is a kidney, which was removed by operation from a woman about forty years of age. This patient had had repeated attacks of pain referable to both kidney regions covering a period of eight or ten years. These attacks had become much more frequent in the last three or four years, and the patient was operated on and this kidney removed. It is rather the worse for preservation from the fact it was to have been presented by one of my assistants some time ago, and for that reason has never been opened. I prefer to present it just as it is. It shows a marked cystic degeneration of the entire organ. Some cysts are collapsed. I may say when this specimen was first removed, it was a very beautiful one, and I regret exceedingly it does not make as good an exhibition as it did at that time. Still I think it is safe to show as a pretty marked specimen of general cystic degeneration of the kidney.

SPECIMEN: SARCOMA OF JAW.

DR. W. N. BELCHER: *History*.—Female; æt 23. For ten years previous to admission to the hospital patient had noticed a small swelling on the left lower jaw near the first molar tooth. This was not painful, and it would apparently disappear to return again later on. During the year or year and a half just previous to admission this growth seemed to be getting steadily, but slowly, larger. She came into the hospital and had this small mass removed. I can find no record of this growth having been examined microscopically at the time.

About one year after leaving the hospital she noticed that her jaw felt sore over the site of

the operation, and it soon became apparent that another tumor was forming. Up to the time of her second admission into the hospital in June, 1898, it had been steadily growing, at times being quite sore, but causing no pain or other inconvenience until about three weeks before admission, when it began discharging into the mouth a watery substance. Examination revealed a hard tumor about the size of a walnut near the center of the outer surface of the horizontal ramus of the left lower jaw.

Operation.—Curved incision through the skin and muscle from the *symphysis mentis* along the lower border of the lower jaw on the left side to the angle and the bone exposed. This revealed a cavity about the size of an English walnut on the outer wall opposite the bicuspid teeth containing brownish fluid. Posterior to this was another cavity containing a tooth, apparently the wisdom tooth.

An opening was now made into the mouth and a fungous periosteal growth observed. This had the gross appearance of sarcoma. The jaw was then divided in the median line and the left half removed entire. A considerable number of enlarged glands were found in the submaxillary region and down along the course of the internal jugular and anteriorly. They were all removed.

Under the microscope the growth showed the picture of myeloid sarcoma containing numerous giant cells.

This patient was seen six months after the operation and was doing well, having improved considerably in her general health.

I want to show this specimen because it presents such a marked destruction of the jaw bone, it being practically all eaten out, as you can see. Of course, this specimen was subjected to certain processes in cleaning up the bones for purposes of examination, but it will go to show you this maxilla was completely eaten out by this malignant disease, and it is remarkable when you take into consideration the comparatively slight disturbance this patient had. The growth had existed in that situation for a number of years and had given this patient little or no inconvenience, no great pain, and possibly had excited no more attention on her part than might occur to any one suffering from trouble with a tooth, such as we frequently consult the dentist for, and here, although this small growth was the only evidence that presented at the time of operation, this was the extensive destructive change that had been going on for a long period in this jaw. It only goes to show what an extensive destructive condition

of affairs may be going on quite a number of years with no reason to suspect its existence.

Six or eight months after the operation the patient was doing pretty well and apparently improving in health. I do not know what the history has been since that time.

DR. H. G. WEBSTER: It may be of some interest to speak of a case similar to this, that was seen by me in the Methodist Episcopal Hospital and diagnosed as a possible sarcoma of the inferior maxilla. It was seen by one or two gentlemen more experienced than myself, and the suggestion made that it was an odontoid cyst, and it was treated accordingly. I think she had four or five successive operations, and finally the lower jaw was removed. She eventually developed an enormous sarcomatous infiltration of the glands of the neck and died.

SPECIMENS: ATROPHIC CIRRHOSIS OF LIVER WITH
CIRRHOSIS OF PANCREAS AND CYSTIC KIDNEY.

DR. H. P. DEFORREST: This specimen illustrates the difficulty of diagnosis. A gentleman who for many years appeared to be in very good health suddenly developed a very marked degree of jaundice, so marked, in fact, that when he came before the Examining Board, it was commented on, and it was suggested that he report to his District Surgeon for examination. He felt well and got about as he usually did—a little lassitude perhaps—before the jaundice developed to a very marked degree.

The history so far as I have it was briefly as follows:

He had an attack of acute jaundice about April 10. He had been given podophyllin and citrate of magnesia. The jaundice improved somewhat and then became worse again. The physician who was in care of the gentleman, Dr. Love, will, I hope, be able to give us a little more detail as to the early progress of the disease. I will speak only of the later stages of the disease.

The movements were as usual in such cases—clay colored—and soon marked swelling of the legs began to develop. Later on in the course of a few more days the scrotum became enormously edematous, as large as an ordinary derby hat, so that it had to be supported in order to give him comfort. Then ascites developed, and on the 26th of April the ascites was so great and interference with breathing, while not marked, was still enough to make it advisable to remove some of the fluid. In conjunction with Dr. Love I tapped him and seven quarts of clear, bile-stained fluid

was withdrawn from the abdominal cavity. Two days later he became still more weak, the ascites began to redevelop, and he was removed to the Memorial Hospital for better care and observation. He sank, however, and in the course of a few days more, on May 4, about three weeks after he was first seen, he died. An autopsy was made—the diagnosis up to that time had been more or less obscure.

There had been no symptoms whatever of pain, and no apparent reason for believing that the jaundice was of that form of obstructive character due to biliary calculi, so calculi were dismissed from our thought, except as a remote possibility. He was a man of singularly good habits, strictly temperate, and had lived an outdoor and active life, and the question of cirrhosis due to alcoholism was also eliminated. He had no specific history, and while there was a possibility that a gumma might exist in the liver, yet in the absence of all other signs of syphilis, that too was excluded.

A day or two before he died there suddenly occurred a number of rather profuse movements of the bowels containing blood, and that seemed to indicate that the trouble was carcinomatous. What we actually found, however, was a liver, which I show you here, and which presented certain features that I personally have seen but once or twice before. This liver is and was of dark green color. Whenever and wherever it was cut, instead of blood oozing from it, as is often the case, bile literally streamed out, even in the left lobe. The surface of the liver is hard and firm, and it cuts exactly as hyaline cartilage would cut. It has a distinct gristly feel, and evidently there is a type of cirrhosis present, which is of a rather unusual variety. I believe that Dr. Murray will be able to throw some light upon the type of cirrhosis here presented, in which the biliary passages perhaps are involved more than in the ordinary way.

I have only to add that the pancreas is also here, and feels likely partly decalcified bone. This cystic kidney, which presented no symptoms whatever was simply an accidental finding at the autopsy.

I omitted to state that the entire intestinal tract showed capillary hemorrhages. The mucous membrane of the stomach was studded over with minute punctate hemorrhages and the capillaries were dilated. From the stomach down to the ileocecal valve with less and less frequency as the latter was reached, the intestine showed patches on the serous surfaces as though red ink were

painted on it. They were scarlet, not the crimson of blood, but a much more vivid hue than ordinarily seen, and when the intestines were opened there were patches of congestion and capillary hemorrhages scattered all along the duodenum and jejunum. There was no special point that we could locate from which the blood had escaped, but it was probably a general hemorrhagic oozing from a number of places along the intestinal tract due to a mere mechanical obstruction.

DR. J. A. LEE: In reference to these two cases of cystic kidney, I had the good fortune a few years ago to assist Dr. Kevin in removing a cyst of the kidney, in which with a surprising lack of symptoms, there was an enormously distended cyst where the kidney was, and if I remember Dr. Murray made a diagnosis of kidney structure. Macroscopically there was absolutely no particle of kidney structure left in this case.

Two or three quarts of fluid had been removed from this cyst, and the woman was passing a surprisingly large amount of urine from the other kidney of good character and quality, and she was entirely free from urinary symptoms.

The remarkable thing about it was that the woman made a rather rapid recovery after the removal of the cyst, and seemed to be getting along all right when a tumor in the region of the other kidney was discovered, and after cutting down we found the other kidney was undergoing cystic degeneration. There was nothing else to do but sew up, which we did, and even then the woman lived for a period of a month or two in comparative comfort.

DR. W. N. BELCHER: With reference to Dr. DeForest's case, I was acquainted with the gentleman to whom the specimen belonged by right of birth. I knew him for twenty years, and he was a man of exemplary habits.

It seems to me that this case is one of what might properly be termed cirrhosis of the liver of the atrophic variety, but of a rather unusual variety.

As I understand it, cirrhosis of the liver may be divided into perhaps three classes: First, the ordinary cirrhosis of the liver, which consists of two stages, the hypertrophic stage, which is followed by the atrophic, the hypertrophic or atrophic really being but two stages of the same disease. We have in addition to that what might be called a biliary cirrhosis, which may be secondary or may be primary. Where it is secondary it is simply as a result of some mechanical obstruction, by which the bile is dammed back in the bile channels in the liver. The primary biliary cir-

rhosis is of the hypertrophic variety, in which the liver is large and rather soft than hard, and which is almost never accompanied by ascites, and which begins primarily in the bile channels, the etiology being by no means clear.

So in view of the fact that this specimen, although it presents the unusual feature of being loaded up with bile, is still hard and reduced in size, it seems it must have been undergoing changes for quite a period. This matter of jaundice, which came on so recently, and which was followed by decided ascites, is suggestive of forced entrance of bile into the intestinal tract, thus unloading the liver. There must have been some sudden arrest of the progress of the bile through its proper channels, so it would seem to me from the history and findings that this was really a case of ordinary hypertrophic cirrhosis presenting unusual features. I am hardly inclined to think in view of the presence of the ascites, the comparative small size of the liver and its hard consistence, that it belongs to the variety known as biliary cirrhosis, although Dr. Murray has given this subject more thought and study than I have.

DR. A. MURRAY: I do not believe I can add anything further to the subject, and as Dr. Belcher explained the class of cirrhosis so lucidly, nothing is left for me to speak of in that respect.

As he says, this does not conform exactly to any of the three types. It is certainly not a hypertrophic cirrhosis, and as he also says, it conforms more nearly to the atrophic cirrhosis of the books because of its size and hardness. There is ascites, but one would not expect to see such severe jaundice in an ordinary atrophic cirrhosis. One would not expect a large amount of ascites in hypertrophic cirrhosis and not much jaundice in the atrophic forms.

As regards the etiology I cannot say much. Mere biliary obstruction will not always produce cirrhosis. Carcinoma of the ducts with occlusion will not produce cirrhosis, but a calculus obstructing the ducts with an inflammation added of the bile ducts and micro-organisms will give you a biliary cirrhosis. In other words, I think the authorities are leaning more and more to the infective nature of cirrhosis. I know Lecky made some experiments. He proved that if ordinary pathogenic micro-organisms enter the healthy liver, it is able to take care of them, but if the resistance of the cells is lowered for any reason, then you will begin to have inflammation and possibly cirrhosis. He was only able to produce cirrhosis by the injection of these pathogenic micro-

organisms after he had lowered the resistance of the cells by obstructing the outward flow of the bile. This obstruction to the out-flow of the bile will cause lowered resistance in the liver cells, so with a calculus there, a chronic catarrhal inflammation is set up, and then possibly a colon bacillus, or anything you please, added to that is the explanation of the obstructive biliary cirrhosis. I do not think this is a biliary cirrhosis, as Dr. Belcher says. It looks like an ordinary atrophic cirrhosis with ascites, and added to that you have this tremendous amount of jaundice, which is uncommon.

DR. H. P. DEFOREST: The gall-bladder was not only completely shut off, but had been shut off for some time, so that the bile was separated into a clear watery glycerine like fluid, with a green sediment. So far as I could find there were no calculi present. The opening into the duodenum, which is there with the specimen, appeared to be entirely occluded, so it is probable that this production of new fibrous tissue did in the course of this gradual formation entirely shut off both the cystic and common duct. I think you will find the cirrhosis is much more marked near the orifices of these ducts than anywhere else.

THE BROOKLYN GYNECOLOGICAL SOCIETY.

ANNUAL MEETING, OCTOBER 2, 1903

The President, FRANK BALDWIN, M.D., in the Chair.

HENRY C. KEENAN, M.D., Editor.

REPORT OF CASE: MISCARRIAGE MISTAKEN FOR ECTOPIC GESTATION, IN A WOMAN WITH DOUBLE VAGINA.

DR. G. McNAUGHTON: I have a case to relate, of which I cannot give the history very accurately perhaps, but of the results I can speak.

This patient had been married a few months, and supposed herself pregnant, as she was. She was seized with severe pain in her side, giving what the attending physician regarded as a typical history of ectopic gestation, with rupture at a rather late date—about the third month.

I did not see the patient until she was put on the operating table, but the time was short, and it so happened that it could not very well be avoided. I made an examination, and found a mass which seemed to be directly behind the

vaginal wall, a little to one side, and to the right. I thought it well to sterilize the vagina. While injecting the fluid a piece of membrane about $1\frac{1}{2}$ inches long appeared at the side of the vagina through an aperture. It was rather suspicious. I put my finger in and found the patient had a double vagina. She had an ordinary miscarriage that had located itself in the other compartment.

The septum ran antero-posteriorly. Whether the patient had a double uterus or not I do not know. I was careful not to make any more examinations than were necessary, as she had a temperature of 104° at that time, and it did not seem to me wise to investigate further.

Discussion.

DR. R. L. DICKINSON: While on the subject of double uterus I should like to report a case of an unusual reason for obstruction to delivery, the child trying to get out of one uterus and the other uterus in the way. The second uterus was retroverted and enlarged, and being in the pelvis, was a distinct hindrance to the exit of the child, until it fell back well into the sacral hollow. The case was not one of complete double uterus, with double cervix. The cervix was of a figure of 8 shape, with a partition between the two portions, and that partition was ripped open in her first delivery.

DR. FRANK BALDWIN: Does the septum in a divided vagina always run antero-posteriorly or laterally?

DR. R. L. DICKINSON: A septum due to a congenital malformation from imperfect removal of the division between the two lateral ducts that make up the uterus, tube and upper two-thirds of the vagina, produces an antero-posterior division. You get the least degree in a uterus cordiformis, next in a uterus septus and complete in a double uterus with double vagina.

DR. SKENE reported a case in which he thought there was one uterus in front of the other. The sound told him so, the small cervix in front of the other cervix told him so. It is the only case I ever heard about.

In the case mentioned, the delivery so tore the septum, that the bleeding was very severe, and a row of catgut sutures had to be put where the septum had torn away from the anterior wall. The septum was clipped away with the scissors from the recto-vaginal wall, and the base whipped over.

I have seen transverse septa in the vagina in cases of this kind: A woman with an offensive

discharge was supposed to have malignant disease. It turned out to be a large double sloughing fibroid, which I removed piecemeal. It had protruded into the vagina so long that the vagina was ulcerated. During the process of repair a septum in the vagina developed, transverse, running from cervix to hymen. I saw it early enough to be able to break down part of it and cut through the rest of it, on the office table. The bleeding was controlled by packing. Then she used a glass dilator. That was case of apparent double vagina, one in front of the other.

DR. FRANK BALDWIN: I was once consulted regarding a baby with a double anus—one anterior to the other. A thin septum extended into the rectum an inch or more. Each orifice was supplied with a sphincter, though the greater number of the circular fibers surrounded the two in common. I dilated, and cut away the septum with scissors. A good result followed.

REPORT OF A CASE: EXTRA-UTERINE GESTATION AT FULL TERM: OPERATION: DEATH.

DR. V. L. ZIMMERMAN: I saw this case when the patient was two months pregnant, and made a diagnosis accordingly. The woman had some symptoms of pregnancy and resolved to get rid of the product of conception, and so attempted an abortion. She flowed for a couple of days, and then was taken with very severe pain, high temperature and very rapid pulse. I saw her in consultation. Everything in the pelvis was matted together. I made a diagnosis of ectopic gestation, advised rest in bed, tamponade of the vagina and hot douches, and under that treatment she got better and got up and around. The next I heard of her she was pregnant. I said it was very remarkable, and I did not see her again until last Tuesday afternoon, when I found her in very bad condition, with intense pain, a pulse of 140, and the uterus drawn up to one side and the cervix slightly dilated. The uterus was empty. I made a diagnosis of extra-uterine gestation, and sent her to the hospital and we operated on her. Unfortunately she died the second day afterward. The baby had been dead probably forty-eight hours, because she felt life up to forty-eight hours before.

The uterus, tubes and ovaries are here. We had to take the uterus out, as it appeared to be the quickest thing to do. The placenta is there in its entirety, and I think it is in between the broad ligaments.

DR. R. L. DICKINSON: Was this uterus attached to the intestine?

DR. V. L. ZIMMERMANN: No; it obtained nourishment from the base of the broad ligament.

DR. J. O. POLAK: I should like to ask Dr. Zimmermann if he made out the parts of the fetal head distinctly through the vaginal wall in this case?

DR. V. L. ZIMMERMANN: Yes; it was down in the pouch of Douglas and a little to the left side, because the thing that struck me when I made my first examination was that the fetal head was below the cervix. The uterus was pulled up very high on the right side and you could barely reach it with the end of the finger, and then the fetal head was below the examining finger.

DR. J. O. POLAK: When I was House Surgeon at Long Island College Hospital I attended a woman in one of the private rooms who fell in labor, similar to Dr. Zimmermann's case. She had gone through an ordinary pregnancy, but had run some three weeks over time. I made out the diagnosis very distinctly by the fontanelles and sutures, through the thinned out vagina, which I mistook for the membranes over the head. Of course she was not delivered and the next morning Dr. Jewett came down to see her and Dr. Skene met him in consultation. They made it out to be a case of extra-uterine gestation of intra-ligamentous development, in which a spurious labor had occurred. The child died and was removed several weeks later by an abdominal incision.

In this case the placenta was left attached to the sac, and sloughed away. We had a very troublesome wound for a long time, but she made final recovery.

DR. R. L. DICKINSON: The woman was in my office two weeks ago and was very well. The scars are not troubling her.

(To be continued.)

BROOKLYN MEDICAL SOCIETY.

The Eighty-fifth Regular Monthly Meeting of the Brooklyn Medical Society was held on September 18, 1903.

The President, ALGERNON T. BRISTOW, M.D., in the Chair.

Minutes of the previous meeting read and adopted.

Dr. Emilio Hergert, 1033 Hancock street, was proposed for membership.

Resignation of Dr. B. Onuf was then read and

on motion duly made, seconded and carried. It was accepted with regret.

Clinical Section: Dr. J. R. Kevin, Chairman.

I. DR. INGALLS: (a) Presentation of a Case of Iritis. He said that it was interesting because of the suddenness of attack. That it occurred while patient was riding in a car, and suddenly, like a blow in the eye. Had terrific pain that night. He thought at first that it was a case of glaucoma. The pupil on examination was not dilated. The ophthalmoscope revealed the iritis.

(b) In a report of a case of a piece of steel in the eyeball, he said that the patient complained of no pain. Saw him every day. Examination revealed a punctured wound of the cornea. The lens was clouded and pain developed subsequently. The anterior chamber began to fill up with pus. He then enucleated and opened eye and found a piece of steel lodged in the vitreous. A peculiar point about the case being that a piece of steel could remain in the eyeball without pain.

2. DR. J. R. KEVIN: (a) Report of a Case of Emphysema of the Gall-bladder. (b) Case of double Pyosalpinx with Operation.

In the discussion of the case of pyosalpinx Dr. James C. Kennedy said that the history of the case pointed to a streptococcus infection. Had the tubes been opened, however, the appearance of the tubal mucous membrane would enable one to more easily exclude the gonococcus. The vast majority of pus tubes have a gonorrheal origin. When both tubes and ovaries must be removed, in many instances, hysterectomy should follow as advocated by Dr. Mann in a recent paper. In a case of double gonorrheal pyosalpinx operated on by him three years ago, the uterus was movable and could have been removed without difficulty. One year later the patient was attacked by a violent pelvic peritonitis due to latent uterine gonococci and at this time the organ is so firmly fixed that hysterectomy is extremely dangerous. Hence he advocated the removal of the uterus in these cases. He said that the uterus was no good anyway after the tubes were gone, that most authorities agreed that most of these cases are of gonorrheal origin and that he coincided in that belief.

DR. A. T. BRISTOW said that the history of gonorrheal infection was extremely vague in women, lots of them not knowing that they have it and said that it would be a very good idea to interrogate the husbands.

DR. KEVIN, in summing up, said that he considered it right to leave the uterus; that it shrivels

up the same as the penis when the testicles are removed.

PROGRAM.

DR. J. W. INGALLS gave a very interesting dissertation on "Some of the More Common Affections of the Eye."

DR. INGALLS gave some very valuable hints to the members on the recognition and treatment of these cases.

In the discussion Dr. James Cole Hancock said he complimented Dr. Ingalls on his comprehensive treatise and would only mention a few points which the doctor had omitted. He called attention to the nasal duct as a source of infection and said that it should always be looked after and treated when necessary. As to the differential diagnosis between iritis and conjunctivitis, he said that an important point was the character of the congestion: In iritis it being a rosy ring immediately embracing the cornea, composed of vessels, very short and very straight, with apices pointing outward, so that the inflammation extended from within out. In conjunctivitis it extended from without in, the vessels being long and tortuous. In ophthalmia neonatorum, he said that it would be ideal to keep the sac clear of pus, which was impossible even with a trained assistant. Thorough use of therapeutic measures being imperative, the silver must be applied by the physician and to the greater part of the lids. He recommended a ten-grain solution and the instilling of Argyrol into the eyes, between applications, the average strength being about 15 per cent., a full view of the cornea being obtained daily. Concerning trachoma he recommended the surgical combined with the antiseptic treatment, and spoke of the Jameson trachomatome as the best instrument, and said that he used the squeezing forceps after employing it. He put the quietus on the use of blue stone as far as he was concerned, saying that the results of its use were as bad often as that of the disease itself.

In corneal ulcers he said that in many cases adrenalin had been of benefit. The result being due in all probability to the alternate blanching and congestion of the affected and surrounding tissues, thus stimulating tissue metamorphosis.

Dr. Chalmers Jameson also discussed Dr. Ingall's remarks.

Adjournment and social session.

HUGH EDWARD ROGERS, M.D.,

Recording Secretary.

Brooklyn Medical Journal.

All communications, books for review, articles for publication, and exchanges should be addressed **BROOKLYN MEDICAL JOURNAL**, Library of the Medical Society of the County of Kings, 1313 Bedford Avenue, Borough of Brooklyn, New York.

Authors desiring Reprints of their papers should state on the galley proof the number of Reprints desired.

Each contributor of an Original Article will receive five copies of the JOURNAL containing his article, on application at the Library of the Society, 1313 Bedford Avenue.

A limited number of black and white drawings to illustrate papers will be reproduced by the JOURNAL free of charge. Electrotypes will be furnished at cost.

Alterations of the proof will be charged to authors at the rate of sixty cents an hour, this being the printers' charge to the JOURNAL.

Entered at Brooklyn, N. Y., post office as second-class matter.

BROOKLYN-NEW YORK, DECEMBER, 1903.

INFANTILE SUSCEPTIBILITY TO TUBERCULOSIS.

VON BEHRING'S conception of the communicability of bovine tuberculosis to human beings, as students of the subject are aware, is directly opposed to that of Koch.

The matter, as a mere controversy, has little interest for the average practitioner except that it may have a practical advantage in illuminating certain little known phases bearing upon the etiology of tubercular infection. One fact upon which von Behring lays considerable stress is the incapability of the intestinal tract to resist the absorption of disease germs and other noxious elements in early infancy. He has shown by experimental investigation that the membranous lining of the gastro-intestinal tract is deficient in epithelial covering in very early life, and for this reason, many substances then readily pass directly into the blood current unchanged. He has shown, for instance, that immunity to diphtheria and to tetanus can be secured in young guinea pigs by the use of the antitoxins of these diseases, administered by way of the alimentary tract, instead of subcutaneously. The large albuminous molecules of the antitoxins pass into the blood current, during the first few days after birth, without conversion into peptones. It is likewise shown that bacilli, when fed experimentally during this period, are also found in the blood stream.

Imperfect continuity of the epithelial covering and deficiency of the digestive ferments in the alimentary tract of young animals are the evident causes rendering them especially susceptible to the invasion of bacteria. Solutions of continuity of the epithelium may occur in older children and in adult life, during attacks of diseases, such as measles, scarlatina and the like, and may thus play a part in the production of tuberculosis. Tubercular infection experimentally produced in

guinea pigs by the bacilli of tuberculosis administered by way of the alimentary canal, is found first manifested by tuberculosis of the cervical glands, a state suggestive of scrofulosis as exhibited by the young of human beings.

Milk contaminated with the bacilli of tuberculosis, whether bovine or human, may be regarded as an undesirable element in the alimentary canals of young infants.

Until the susceptibility of human beings to bovine tuberculosis has been disproved beyond the peradventure of a doubt, it will be wise for the physician to continue to guard to the best of his ability the infantile intestinal canal against the entrance of the *bacillus tuberculosis* of both human and bovine origin.

MEDICAL LIBRARY AND HISTORICAL JOURNAL.

The Medical Library and Historical Journal, which has just completed its first year, promises an attractive array of readable papers for its pages during the coming year from some of the best-known writers of the medical profession of the country. Among them may be mentioned, Dr. William Osler, Dr. Roswell Park, Dr. Abraham Jacobi, Dr. Lewis Stephen Pilcher, Dr. C. J. Cumston and others. We predict for it continued success. The books received by the *Historical Journal* for review, like those received by the **BROOKLYN MEDICAL JOURNAL**, are permanently deposited in the Library of the Medical Society of the County of Kings.

OBITUARY.

JOHN LYAL HENRY WALDIE, M.D.

Dr. Waldie was born in Brooklyn, N. Y., on December 14, 1872, and died in this city on October 18, 1903. His father was George Waldie, of Scotland, and his mother, Margaret Theresa Grace, of Dublin, Ireland. On September 1, 1895, Dr. Waldie married Miss Elizabeth Keogh. The children of this union were Grace, Marie and John Lyal Waldie.

Dr. Waldie was educated in the public schools of Brooklyn and graduated M.D. from the Long Island College Hospital in 1895. During the years 1895-96 he served as interne in St. Mary's Hospital. At the expiration of his term he engaged in private practice in this city. At the time of his death he held the position of Neurologist to St. Mary's Hospital. He was a member of the Medical Society County of Kings, Brooklyn



JOHN LYAL HENRY WALDIE, M.D.

Medical Society, the American, New York State and Kings County Medical Associations, and of the Alumni of St. Mary's Hospital.

WILLIAM SCHROEDER, M.D.,
Secretary of Historical Committee.

CORRESPONDENCE.

To the Editor of the BROOKLYN MEDICAL JOURNAL.

SIR: The relation between the attendant, the patient and the nurse is so vital that the welfare of the patient and the interests of the attendant are put in jeopardy when the nurse fails in her duty. It is, however, but with one aspect of the subject I desire to deal—that of the dilatory nurse. That I may not be misunderstood by the nurses I wish to specifically state that this defect is not a predominating characteristic of them as a class, but applies only to certain individual nurses. The first defect in the dilatory nurse is her indifference to respond promptly to the call of the attendant in going to the case.

I know not what may be the experience of the medical profession, but in my individual experience I have too often found those of the class to which I refer.

How frequently the nurse I want tells me on making the appointment that she would go at once, when on my arrival at the patient's home she had not put in an appearance, compelling me to waste half an hour or an hour, or even more, in waiting to see her, or be compelled to leave

written instructions for her guidance, or if I remained long enough to have the nurse on her leisurely arrival express surprise that I was already there.

Very likely she would assure me that she had started within an hour; delightfully complaisant that she had done her whole duty. The need and comfort of the patient may seriously suffer because of the inexcusable delay. As a result the nurse fails to make the favorable impression she might have done, and starts in on the case with her influence and prestige more or less crippled, and at the same time has prejudiced herself with the attendant. But the injury does not stop here. The knowledge of her dilatoriness reaches a larger circle of influence and prejudices the public to a greater or lesser degree against the trained nurse. Again, this failure on her part reacts to the depreciation of the services of her prompt sister nurse.

A case in point which occurred is the following: About a year ago a patient of mine, the wife of a physician who is a member of the Medical Society of the County of Kings, was seized with sudden and violent aggravation of symptoms, which put her life in jeopardy and for which immediate operation was needful.

I telephoned a most excellent nurse, telling her of the urgency of the situation, asking her to engage another nurse in the house with her, and come to the case immediately. She began to make excuses, and set the time of starting so late I was compelled (after expostulating with her for her tardiness) to tell her she need not come. I immediately called up another nurse, who could start within five minutes, bringing a second nurse with her. The preparations were speedily made, the operation performed and the patient's life saved.

What shall be the remedy?

A proper co-operation among physicians and nurses will bring about the desired end.

Certainly no wise nurse need be told that promptitude is a cardinal virtue, and in proportion as they estimate the value of such action the evil will be remedied. But the profession holds power of enforcing a compliance of the nurse with so reasonable requirement, and each member of it can adopt such a course as he deems expedient.

My method is this: For years I have kept a list of "tried and trusted nurses." I refuse to add the name of any nurse to this list who will not pledge herself to equal promptitude with myself in emergency calls.

Respectfully,
WALTER B. CHASE.

MEDICAL NEWS.

EDITED BY CLARENCE REGINALD HYDE, M.D.

It is earnestly hoped that all members of the profession possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor before the 9th of each month. Items for this department should be sent promptly to Clarence Reginald Hyde, M.D., 126 Joralemon Street.

In the death of Mr. Charles Ide, president of the Board of Regents of the Long Island College Hospital, that institution has lost one of its most valued friends and counsellors.

We regret to chronicle the death of Mrs. William B. Greenman, sister of Dr. Nathan T. Beers, of Bedford Avenue. The JOURNAL extends its sincere sympathy to Dr. Beers and the bereaved family.

On November 6th the Council and Hospital and College Faculties of the Long Island College Hospital were the guests at a dinner given at the Hamilton Club by Dr. John A. McCorkle, president of the college. Covers were laid for twenty-seven. After the health of the host was drunk, informal speeches were made by Prof. George Plympton, emeritus professor of Chemistry, and Dr. Ezra Wilson of the Council.

For the first time in many years, there are no vacancies in the Council of the Long Island College Hospital. As it now is, the Council is composed of the following: president, Joel W. Hyde; secretary, Henry A. Fairbairn; Edwin A. Lewis, Joseph H. Hunt, Arthur R. Paine, Charles N. Cox, Jacob Fuhs, Leon M. Fleming, Ezra Wilson and Walter B. Chase.

Dr. George H. Pierce, 90 St. James Place, announces that he will devote special attention to the treatment of diseases of the kidneys and heart.

Dr. Henry Wallace, formerly of Clinton Street, has removed his office to 201 Ridgewood Avenue, Glen Ridge, N. J. While he will engage in general practice, he will devote himself to throat and nose as his specialty. His family accompanies him.

Dr. Earl H. Mayne, of Bath Beach, has opened an office at 172 Remsen Street for the special treatment of diseases of the rectum.

Ground was recently broken for the New Harlem Hospital on Lenox Avenue, between One Hundred and thirty-sixth and One Hundred and

thirty-seventh Streets. The hospital will be eighteen months in building and cost about \$500,000. McKim, Mead, and White, architects for the new \$3,000,000 Bellevue Hospital, have nearly completed their plans. Contractors' bids are to be received soon.

The Harvard medical school receives, under the will of Dr. George Haven, of Boston, \$25,000 outright and a share in the residue, and the Boston Lying-in Hospital receives the doctor's books and instruments, a gift of \$20,000, and shares equally with the Harvard medical school in the residue.

At a recent meeting of the Board of Trustees of Columbia University, New York City, five new professors in medicine were appointed, the first two to have seats on the medical faculty. They are: Dr. Samuel W. Lambert, Dr. Joseph A. Blake, Dr. George E. Brewer, Dr. John S. Thatcher and Dr. Frederick Peterson. Dr. George M. Lefferts, who has announced his intention of retiring from the chair of laryngology on June 30, when he will have finished thirty years of academic service, presented to the university his unrivalled collection of apparatus for illustrating the teaching of laryngology and rhinology. The trustees accepted the gift of Dr. Lefferts and ordered that the apparatus should be hereafter known as the Lefferts collection. The collection has large pecuniary, as well as educational value.

Dr. Arthur Mathewson, of Montague Street, professor of ophthalmology in the Long Island College Hospital, intends in the near future to give up his practice and leave Brooklyn for Washington, D. C., where he intends to reside permanently. He will not engage in active practice there, but will continue to act in a consulting capacity. His reason for choosing Washington is because of his many naval friends there and his love for the Capital City, which he came to know intimately while a surgeon in the United States Navy during the Civil War. Immediately after his graduation, in 1861, he entered the Navy, at one time serving on the same ship with Admiral Schley, then a young lieutenant. For a number of years Dr. Mathewson has been the chief eye surgeon in the Brooklyn Eye and Ear Hospital and has acted as consulting ophthalmologist to the Long Island, St. John's, St. Mary's and the Brooklyn Hospitals.

The New York State Association of Railway Surgeons ended its formal session in the Academy of Music, Manhattan, November 12, when Dr. James A. Eaton, of Montclair, N. J., read a paper

on car sanitation in which he advocated flushing cars with water at the end of runs and protested vigorously against the overheating and ill ventilation of ordinary day cars. In these, he said, the air was often as vitiated as in the worst ventilated smoking cars.

In his informal report to the New York Association for Improving the Condition of the Poor, John Seely Ward, who has been summering in Europe investigating hospitals for tuberculous children, public baths, and forms of popular amusement, recommended that the Association undertake the construction and maintenance of a hospital in or near New York especially devoted to the treatment of poor children suffering from tuberculosis.

The council and fellows of the New York State Medical Association at its annual meeting held at the New York Academy of Medicine elected the following officers:

President, Dr. William Harvey Thornton, Buffalo; vice-president, Dr. Charles T. Payne, Liberty; secretary, Dr. Guy Davenport Lombard, New York City; treasurer, Dr. Frederick A. Baldwin, New York City; chairman committee on arrangements, Dr. Samuel A. Brown, New York City; chairman committee on legislation, Dr. E. Eliot Harris, New York City; chairman committee on library, Dr. John Joseph Nutt, New York City; chairman committee on public health, Dr. Louis C. Ager, Brooklyn; chairman committee on publication, Dr. Charles Ellery Denison, New York City; chairman committee on nominations, Dr. J. Orley Stranahan, Rome; delegates to the annual meeting of the American Medical Association, Drs. Joseph W. Grosvenor, Buffalo, and E. Eliot Harris, New York City.

The New York State Medical Association has pledged itself to make another attempt at the coming session of the Legislature to get through a bill abolishing the office of Coroner here. A similar bill, introduced by Senator Elsberg, failed to pass the Assembly last year, but the Association's legislative committee is confident of getting one passed this year. The bill will provide for the distribution of the Coroner's duties among the Health Department, the District Attorney and the City Magistrates. The medical association believes that no one man can be found who possesses the expert medical legal and judicial knowledge that the office of Coroner requires.

The report of the committee on public health said that the birth rate could be increased by the

suppression of false medical advertisements. Dr. J. W. Kyger, of Kansas City, at a recent meeting of the medical association there, recommended a newspaper censorship to this end. An effort will be made by the association to get a bill through the next Legislature requiring examination of the eyes and ears of all school children and restricting to medical graduates the prescription of certain glasses.

Dr. J. Bion Bogart announces the removal of his office and residence from 423 Washington Avenue to 463 Clinton Avenue, near Gates. Dr. Bogart has solved the problem of combining office and residence in his new house, with neither conflicting, as the whole first floor is devoted to patients' use. Everything pertaining to the patients' comfort has been introduced and no convenience for the Doctor's use, or as an aid in diagnosis, has been omitted. The furnishings are rich and the decorations in perfect harmony, no detail clashing. A special feature of the offices is the "Surgery," adjacent to the Doctor's private office.

BOOK REVIEWS.

TEXT-BOOK OF OBSTETRICS. Fourth Edition, revised and enlarged. By Barton Cooke Hirst, M.D. Philadelphia, New York and London, W. B. Saunders & Co., 1903. 899 pp., 16 pl. 8vo. Price: Cloth, \$5.00; sheep or half morocco, \$6.00.

This standard text-book is too well known to require extended notice. The edition before us embraces the recent advances in the subject and is a reliable exposition of present day obstetrics.

A noteworthy feature of the work is the degree of attention paid to the surgical side of obstetric practice. This is as it should be. Men well trained in surgical work make the best obstetricians. Especially must the obstetric practitioner be skilled in the surgical treatment of the various pelvic lesions resulting from parturition. It is no less important, by the way, that the gynecologic surgeon be well grounded in obstetrics.

The mechanical execution of the book is excellent. The work should find a place in the library of every physician who has to do with its special field of practice.
C. J.

A MANUAL OF OBSTETRICS. Ninth Edition, revised and enlarged. By A. F. A. King, A.M., M.D. Philadelphia and New York, Lea Bros. & Co., 1903. xxiii, 17-622 pp., 12mo. Price: Cloth, \$2.50.

Dr. King's manual is an old friend. It enjoys the distinction, if we mistake not, of being the oldest obstetric text-book that has kept abreast the progress in its field. That it has reached the ninth edition is flattering evidence of the esteem in which it is held by teachers and practising physicians. The last revision has included many important improvements in the text

and the introduction of several new illustrations. Dr. King's book presents in a condensed form the essential facts and principles of the modern obstetric science and art.

C. J.

TEXT-BOOK OF CLINICAL ANATOMY. For Students and Practitioners. By Daniel N. Eisendrath, A.B., M.D. Philadelphia, New York and London, W. B. Saunders & Co., 1903. 515 pp., 8vo. Price: Cloth, \$5.00; sheep or half morocco, \$6.00.

Every teacher of anatomy must feel how wholly inadequate to a proper conception of the subject are the first two years of the curriculum devoted to descriptive anatomy. How many students have simply memorized the names of the vessels, nerves and muscles to pass examination. After that anatomy is a closed chapter.

Descriptive anatomy should be but the preparation for what is of supreme importance, viz., the application of the facts to practical clinical work at the bedside and in the operating-room.

The signs of the times are favorable to a better appreciation of anatomy and ere long it will cease to be an obstacle in the student's path or a burden upon his shoulders as teachers impress their students with its importance not as of "preliminary" or ephemeral significance but as a permanent possession for all time.

Dr. Eisendrath in his *Clinical Anatomy* has done a real service in presenting the facts of anatomy as they are related to practical work at the bedside. His idea has been to bridge over the gap from descriptive anatomy to their application in the clinic and operating-room. The author has succeeded admirably in presenting a volume which treats the subject in a clear, logical and instructive manner. The illustrations deserve more than passing notice. They are original in conception and design. The structures have been marked upon an artist's model and photographed. This gives an excellent idea of surface anatomy and presents illustrations of real artistic merit. We heartily recommend this book. The text, illustrations and typography are of unusual excellence.

WILLIAM FRANCIS CAMPBELL.

COMPEND OF HUMAN ANATOMY. By Samuel O. L. Potter, M.A., M.D., M.R.C.P.Lond. Seventh Edition. Philadelphia, P. Blakiston's Son & Co, 1903. 372 pp., 12mo. Price: Cloth, 80 cents.

We have before us the seventh edition of Dr. Potter's work, this of itself is an evidence of its popularity. Such a compend was evidently demanded and Dr. Potter has met the demand in an admirable manner. This present edition has been revised and brought into harmony with the latest text-books on this subject. Like all compends the matter is presented in an exceedingly condensed form. This is necessary. The condensation, however, has been carried out in a judicious manner, and none of the essential features of the subject have been slighted. Among the anatomical compends it ranks among the first, and commends itself to teachers and students of anatomy who need a volume of this kind.

WILLIAM FRANCIS CAMPBELL.

A TEXT-BOOK OF SURGERY. For Students and Practitioners. By George Emerson Brewer, A.M., M.D. New York and Philadelphia, Lea Bros. & Co., 1903. 706 pp., 7 pl., 8vo. Price: Cloth, \$5.00; leather, \$6.00.

The author states in his preface that he has felt during his experience as a teacher the need of a "comprehensive yet abridged text-book on surgery suitable for the use of students and practitioners and presenting clearly the modern views of surgical, pathology and treatment."

Under such circumstances we do not therefore expect an exhaustive, original or classical treatise of surgery. All that the author is expected to do is to present a condensation of the various surgical injuries and diseases and the accepted surgical procedures. Brevity has prevented the author from describing more than two methods of treating the given surgical affections. We cannot always agree with the author as to the importance of the method which he has selected. The chapter on diseases of the biliary passages is excellent, and his clear and concise statement of the present status of biliary surgery is one of the best we have had the pleasure of reading. The author limits the application of Kocher's method of reducing dislocations of the shoulder to the sub-coracoid variety, we feel that this method has a wider application and is applicable to all anterior dislocations of the shoulder so long as the capsule is not extensively torn.

The student and practitioner will find this a convenient volume in which to peruse the essential facts in practical surgery. The volume is clear, concise and thoroughly modern. WILLIAM FRANCIS CAMPBELL.

NERVOUS AND MENTAL DISEASES. By Archibald Church, M.D., and Frederick Peterson, M.D. Fourth Edition, thoroughly revised. Philadelphia, New York and London, W. B. Saunders & Co., 1903. 922 pp., 2 pl., 8vo. Price: Cloth, \$5.00; sheep or half morocco, \$6.00.

All in all, this appears to be the best work, in English at least, on this subject, for students, and a very acceptable treatise for the practitioner.

The review of the first edition in this journal for September, 1899, "prophesied that it will long stay in the front rank of favorite treatises," if kept duly revised. Though the comments and criticisms there made are yet applicable, and Part I on methods of examination is too brief, still some revision has been made. A few topics of recent interest have been elaborated judiciously. The portion devoted to nervous diseases has been increased by 40 pages, while the mental section has received a novel enlargement in the shape of "A Review of Recent Problems of Psychiatry," by Dr. Adolf Meyer, of our State Pathological Laboratory. This part covers some 38 finely printed pages; as a text for students it may be considered a somewhat interesting experiment. Otherwise the mental section remains the same.

The publisher's side has, of course, been admirably done, too well, in fact, for the average medical student's purse. While too heavy to hold in the hand for reading, it opens out fairly on the desk. W. B.

HIGH-FREQUENCY CURRENTS IN THE TREATMENT OF SOME DISEASES. By Chisholm Williams, F.R.C.S., Edin. London, Rebman, Ltd.: New York, Rebman Co., 1903. Front., xvi, 222 pp. 2 pl. 8vo. Price: Cloth, \$2.75.

The fact that the subject of high frequency and high potential electrical currents is so little understood, makes the appearance of Dr. Williams' book very opportune. The author has endeavored to give a concise explanation of these currents and the class of diseases they are most useful in. He has simply mentioned those conditions that he had had experience in and omitted many that have not yet had extended trial. Although the work has many shortcomings, it will be found useful to any one seeking a guide in this subject, for if the reviewer is correctly informed it is the first and only extensive work upon this subject.

The book is well bound and printed, upon good paper. J. M. WINFIELD.

TRANSACTIONS OF THE AMERICAN ROENTGEN RAY SOCIETY. Third Annual Meeting, Chicago, Ill., December 10 and 11, 1902. Louisville, Ky., 1903. 188 pp., 9 pl. 8vo.

The transactions contain a number of papers of interest to any one working with the Roentgen ray. The President's address gives a brief history of electricity, magnetism, etc., and their application to medicine. The papers that deserve especial mention are, "Instantaneous Skiagraphy," "Results and Technique in Treating Epithelioma with X-ray," "Radio-therapy in Tuberculosis."

J. M. W.

THE PRACTICE OF OBSTETRICS BY AMERICAN AUTHORS. Edited by Charles Jewett, M.D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, Brooklyn, N. Y. New (2d) Edition, revised and enlarged. 8vo. pp. 775, 445 engravings in colors and black and 35 full-page colored plates. Cloth, \$5.00 net, leather \$6.00, half-morocco \$6.50. Philadelphia, Lea Brothers & Co., 1902.

For one individual to write a concise monograph upon a subject with which he is thoroughly familiar is not an especially difficult task, but to take thirty-five such special articles and arrange, harmonize and blend them into a homogeneous whole is an editorial task requiring talents of a high order. The editor to whom this task has been given is Dr. Charles Jewett, who for many years has been at the head of the Department of Obstetrics and Gynecology in the Long Island College Hospital in Brooklyn. In his teaching he early recognized the need of a practical training in obstetrics to supplement the time-honored didactic lectures. To make this volume a practical one, therefore, has been his aim and that it should represent the views of specialists in similar lines he has as collaborators eighteen men, nearly all of whom are actively engaged on the professorial staff of collegiate institutions. That success has crowned his efforts is evidenced by the fact that the first edition was rapidly exhausted and it is fair to presume that the new edition materially enlarged and, in many cases re-written, will be equally successful.

By reason of the death of William W. Browning, who first contributed the chapter on Anatomy, a successor was selected in the person of Algernon T. Bristow, a surgeon and anatomist and at the present time the President of the Medical Society of the State of New York. Under his charge the chapter has been made to include much that is new and a number of plates have been added to the text. The accurate drawings from dissections of the pelvic floor throw new light upon the origin and insertion of the levator ani muscle and adjacent structures.

As normal conditions should first be well understood, the first three divisions are devoted to the Physiology of Pregnancy, of Labor and of the Puerperium. Manton, Palmer, Buckmaster, Robb, Bartley, Dickinson and Jewett are the contributors and the chapter devoted to the management of normal labor by the last named author is one of the best in the volume.

Pathologic Obstetrics is next considered. . . . The Pathology of Pregnancy, of Labor and of the Puerperium in the order named and then a closing division devoted to Obstetric Surgery.

Montgomery A. Crockett of Buffalo has rewritten the chapters first written by the late J. H. Ethridge and the subject of Diseases of Pregnancy is especially well presented.

Puerperal Infection is the subject assigned to J. Whitridge Williams of Johns Hopkins University. A complete bibliography accompanies the text and the chapter embodies the best treatise on the subject extant.

A new chapter on the operation of Version has been added by John O. Polak of Brooklyn, and while little that is new is added to the technique of an operation probably centuries old, the chapter is of especial value by reason of the practical treatment of the subject and the illustration of the various steps in the procedure by photographic reproductions of the operation as it actually occurs with the use of a fetus, a half-pelvis and the hand of the operator.

In obstetric surgery the greatest advances have been made in recent years and Hunter Robb, of Cleveland, in two of several chapters in this section describes the plastic perineal operations and the Cæsarean section, the Porro operation and symphysiotomy in a manner which merits comment. With the progressive and continued improvement in the technic and in the results of the Cæsarean operation this has superseded as the operation of choice both the Porro and symphysis procedures. Hysterectomy is not as essential to-day as it was formerly because of the better results with the Cæsarean section. The application of symphysiotomy seems now to be limited to those cases where labor has actually begun, and therefore a just estimate of the proportion of passage to passenger can be made, and where with a true conjugate of not less than three inches but little more room is needed to effect a delivery. Craniotomy, too, has to be weighed in the balance and if the mother's condition is so precarious that one of the major sections would probably cause her death, the crushing operations should not be restricted to a dead child. Compared to the rest of the book these chapters are poorly illustrated. The steps of the Cæsarean section illustrated in a manner similar to those of version, just mentioned, would enhance the value of the descriptive matter.

The index is unusually complete, nearly five thousand titles being classified, but the list of the plates and engravings is omitted and with nearly five hundred illustrations, many of them new, of exceptional interest and accurate reproduction, this omission makes them difficult to find and lessens their value.

Boston may claim the credit of the work of Reynolds and Newell, and Philadelphia is the home of Hirst, whose volume has recently been reviewed, but this particular volume is essentially a Brooklyn production. Dr. Jewett and his associates, Drs. Browning, Bristow, Bartley, Dickinson, De Forest, Hyde, Polak and Van Cott and Jewett, all on the teaching staff of the Long Island College Hospital, has each contributed in a greater or less degree to the sum total of the work so ably edited. Each no doubt has an interest in the success of the volume, and a satisfaction in the fact that together with the two other books it is one of the trio of really important works upon obstetrics that have recently appeared, and in many respects is the superior to either of the other two. HENRY P. DE FOREST.

DISEASES OF THE EAR. A Text-Book for Practitioners and Students of Medicine. By Edward Bradford Dench, Ph.B., M.D. Third Edition, Revised and Enlarged. New York and London, D. Appleton & Co., 1903. xxv pp., 1 l., 3-718 pp., 11 pl., 5 col. pl. 8vo. Price: Cloth, \$5.00.

In this third edition of his book Dr. Dench has added some sixty or seventy pages to what was contained in the former editions. To fill up this additional space we find new material relative to the bacteriology of the middle ear, and almost new chapters regarding the operative treatment of chronic middle ear suppuration, and the various intracranial complications of suppurative middle ear disease. We note also with pleasure the elaboration of the index, which adds distinctly to the reference value of the book.

Altogether the work done on this new edition places it fully abreast of the Otolological times, and we commend it highly to all those wishing a Text-Book on Otolology.

J. E. SHEPPARD.

TEXT-BOOK OF PATHOLOGY AND PATHOLOGICAL ANATOMY. By Dr. Hans Schmaus. Translated from the 6 German Editions by A. E. Thayer, M.D. Edited, With Additions, by James Ewing, M.D. Philadelphia and New York, Lea Bros. & Co., 1902. 602 pp., 35 col. pl. 8vo. Price: Cloth, \$4.00.

With the advent of an American edition of Schmaus' Text-Book of Pathology and Pathological Anatomy another valuable addition to pure pathology in available form is at hand. When Schmaus wrote the first edition of his work he was a "Privat Docent" in Munich. The translation is from the sixth German edition, and finds the author Extraordinary Professor in the University of Munich. The book has grown with the professor—the last edition being much more comprehensive than the first, and quite up to date.

No one could ask for a better treatment of an abstruse subject for students. The fundamental principles are first clearly set forth, after which their special application to organic disease follows.

The translator has shown faithfulness and accuracy, while Professor Ewing has admirably adapted the book to the needs of American students. His erudition, and enormous capacity for work have ensured success for the American edition, which should find a first place in all the medical schools in the country, and prove very helpful to students. The book is a 4to of 602 pages, with hundreds of fine illustrations. In 15 chapters the following subjects are considered: 1, Disorders of Circulation; 2, Regressive Processes; 3, Progressive Processes; 4, Congenital Anomalies and Deformities; 5, Parasites; 6, General Diseases from Disturbed Functions; 7, The Circulatory Apparatus; 8, Spleen, Lymphatics, Marrow; 9, Respiratory Organs; 10, Digestive Organs; 11, Urinary System; 12, Nervous System; 13, Organs of Locomotion; 14, Genital Organs; 15, Skin. From the publisher's standpoint the work is quite up to the usual high standard of Messrs. Lea Bros. & Co.

J. M. VAN COTT.

A TREATISE ON DISEASES OF THE EYE, NOSE, THROAT AND EAR. For Students and Practitioners. By Various Authors. Edited by William Campbell Posey, A.B., M.D., and Jonathan Wright, M.D. Philadelphia and New York, Lea Bros. & Co., 1903. xiv, 17-1238 pp., 35 pl. 8vo. Cloth.

Dr. Posey and his distinguished collaborators have succeeded in producing a work which will form a very valuable addition to a physician's library. In the short space assigned us for review it will be impossible to give more than a brief outline.

The technique of the examination of the eye is concisely and thoroughly explained by Posey. Suter has an interesting chapter on the Physiology of Vision. The important Subject of Refraction has been treated in an interesting and practical manner by Duane.

Wood conservatively considers the much-vexed question of the ocular muscles. Reeve gives an excellent resumé of operations for deformities of the lid. As might be expected from such an able authority, Weeks has given an up-to-date treatise on the Diseases of the Conjunctiva.

Through an oversight in proof-reading, the obsolete "onto" appears in several places. Those interested in the embryology of the eye will attentively peruse Würdemann's article. In ophthalmic surgery, few subjects are of more importance than sympathetic ophthalmia.

Inasmuch as Gifford has been making investigations for a number of years, whatever he may have to say will be regarded as authority. In passing, it may be noted that he does not rely upon photophobia as an early symptom of sympathetic ophthalmia, for the sign is "generally conspicuous by its absence."

Ellet, in the chapter on the Crystalline Lens, evidently favors the combined method rather than simple extraction. Treacher Collins' article on Glaucoma may properly be considered as a summary of the present knowledge of this formidable disease.

Starr, in considering Disturbances of Vision, mentions, as a part of a test, the induction of monocular diplopia by putting "thin edge of prism opposite middle of pupil of seeing eye." Thin edge is not necessary, any side will produce similar result. On page 649 myotics is probably intended in place of "myopics." Veasey's chapter on General Preparation for Operations upon the Eye is replete with practical suggestions.

Shumway's Technique of the Pathological and Bacteriological Examinations of the Eye is an important contribution to this relatively new department of ophthalmic literature.

JAMES W. INGALLS.

POSEY AND WRIGHT—EAR SECTION.

The reviewer of the Ear portion of Posey and Wright's book does not believe that the authors have given "a comprehensive, authoritative, and practical exposition of those cognate departments," so far as the Ear department is concerned. Practical? perhaps; authoritative? yes, as far as it goes; but comprehensive? No; not sufficiently so for even "the needs of general practitioners and students."

In a book of 1238 pages the Eye has 685 pages, the Nose, Throat and Accessory Cavities 384 pages, while the Ear draws the small prize of 125 pages. It seems to the reviewer that, if the latter two departments must be satisfied with 510 pages to 685 for the Eye, then we have a strong reason from the professional standpoint for a complete divorce of the Eye by the Nose, Throat and Ear, even though business reasons, from the publisher's standpoint, demand their union.

The lack of space seems more or less evident throughout the Ear section. While it is perhaps permissible to presuppose a knowledge of Anatomy, Physiology and Embryology, it seems as if, to be comprehensive, something were required about general Etiology, Pathology, Symptomatology, Diagnosis, and Therapeutics. We find nothing, *e.g.*, about exostoses of the external auditory canals, nor about artificial drums, nor about acute catarrhal affections of the Eustachian tube and tympanic cavity, and nothing about the medico-legal or life insurance aspects of ear diseases; the chapter upon the Internal Ear and its Diseases seems very much curtailed, and he would have to be a more than ordinarily careful observer who could make an accurate differential diagnosis between diseases of the middle and of the internal ear, as they are often met with, from any information contained on that subject in any of the four chapters of which the Ear section is composed.

So much for what is *not* in the book. What the book does contain is largely beyond criticism. Hopkins' chapter on the Methods of Examination, and on diseases of the auricle, external auditory canal, and tympanic membrane, is excellent as far as it goes; it certainly would have been more complete had it contained a subdivision upon Symptomatology and Diagnosis. As intimated above, Crockett's chapter on Internal Ear diseases seems especially meagre; his remark in the opening paragraph that "the more careful the observation the greater the number of labyrinthine cases recorded" is certainly true, and whets one's appetite for more knowledge on the subject, which his subsequent nine pages only very par-

tially appeases. Cheatle's chapter on "Chronic Non-Suppurative Middle-Ear Diseases" is in many respects good, but might well have been made more embracing by leaving out the word "chronic," and making the noun plural; instead of singular. Alderton's chapter on "Purulent Inflammation of the Middle Ear" is easily the star number on the program. It is a remarkably satisfying, well-balanced, article on the subject and leaves nothing to be desired. J. E. SHEPPARD.

Drs. Posey and Wright have assigned ten chapters to the consideration of diseases of the nose and throat. They have proved the excellence of their judgment by the products of the authors whom they selected, for each article is a masterpiece and the whole constitutes one of the most valuable works upon this special subject. The anatomy and physiology of these organs are omitted, as it is assumed that the reader possesses a sufficient knowledge of these departments.

The initial chapter, by Dr. J. L. Goodale, of Boston, upon the Histological Pathology of Diseases of the Nose and Throat, is worthy of very careful study. It is most instructive and represents a vast amount of thought and research. It is a great assistance to students to have the pathology of these diseases thus considered in one paper, for in no other way can they clearly understand the logical sequence and co-relation of disorders of the upper air tract.

The author has wisely followed the classification adopted in works upon general pathology, and has divided the subject into four groups:

1. Disturbances of Circulation.
2. Inflammations.
3. Progressive Disturbances of Nutrition.
4. Regressive Disturbances of Nutrition.

Some idea of the character of the text may be gained from the following extracts, page 692: By infectious or traumatic inflammations is denoted those tissue changes "directly dependent upon bacterial, chemical, or physical irritants." From the histological standpoint the question of the bacterial or the non-bacterial nature of the irritant is a secondary one. The effects produced by the bacterial toxins may be almost exactly duplicated by chemical, mechanical, or physical agents. We may thus have an acute inflammation of the mucous membrane due to an incision or to a chemical or thermic cauterization, closely resembling that produced by the toxins of the diphtheria bacillus or the streptococcus pyogenes. Another instance may be found in the histological lesions produced by the bacillus of tuberculosis and by an aseptic foreign body. At the present time we are passing from a system of classification founded upon pathological anatomy to one based upon etiology."

Also on page 693, "Acute inflammation of the mucosæ may be proliferative or exudative, according as the irritating agent is mild or severe. In the first case the result is an acute catarrhal rhinitis, pharyngitis, or laryngitis, and in the latter it is a fibrinous inflammation of these parts." "Where the irritant is of peculiar intensity the preliminary phenomena of proliferation of the tissue cells are followed by fibrinous exudation from the blood vessels. It should be emphasized that this condition is not separated from the preceding one of proliferation by definite etiological boundaries, but represents merely the effect of a stronger toxin upon the affected tissues."

Dr. J. E. Newcomb describes the methods of examination and operating in a thorough and detailed manner. The necessary instruments are illustrated, and their proper care and surgical cleanliness insisted upon as an essential to successful treatment. Regarding the use of cocaine muriate as a local anæsthetic, he states that "in intranasal operations a 10 or even 20-

per-cent. solution may be used, but there is doubt as to the necessity of such strengths, for such procedures as the use of the cautery, saw, snare, or cutting forceps, a 5-per-cent solution is strong enough, especially if there be added thereto 2 per cent. of sodium sulphate. The latter remedy favors absorption."

Inflammatory diseases of the upper air passages by Dr. Chas. W. Richardson is an important chapter, since it covers those diseases which are of most frequent occurrence and whose treatment occupies much of the time of the Rhinologist. Under the Management of Hay Fever, he says: "For the constitutional treatment of hay fever during the attacks, I know of no drug whose action is so constant, so consistent and uniformly successful as suprarenal extract. This should be given in doses of 3 to 5 grains every two or three hours, and can be pushed until there is noted a feeling of vertigo, nausea and increased activity of the heart."

Diphtheria, syphilis, tuberculosis and laryngeal stenosis are ably considered by Dr. William Kelly Simpson. Of antitoxin, he states, page 835: "In comparison to the great efficacy of antitoxin in its results in diphtheria, we may say that its poisonous effects are almost nil." From 2,000 to 4,000 units should be administered.

The subjects of the remaining chapters are Neoplasms, Neuroses, Diseases of the Accessory Sinuses and External Deformities. W. F. DUDLEY.

SAUNDERS' MEDICAL HAND-ATLASES. ATLAS AND EPITOME OF DISEASES OF THE MOUTH, PHARYNX AND NOSE. By Dr. L. Grünwald. Second Edition, Revised and Enlarged. Authorized Translation from the German. Edited, with Additions, by James E. Newcomb, M.D. Philadelphia and London, W. B. Saunders & Co., 1903. 219 pp., 42 col. pl. 12mo. Price: Cloth, \$3.00.

This is an admirable little book. Its value will be evident to every student who appreciates the necessity of clinical study and who desires a guide in diagnosis. Nearly one-half of the volume is devoted to colored plates, illustrating the diseases of the upper respiratory tract. Both the gross and microscopic anatomy is shown. The drawings are accurate and the pictures are remarkably true to nature. We congratulate the author upon the artistic merit of the Atlas.

The text also deserves careful attention. The "Remarks on Anatomy and Physiology" contain many important details that are often slighted or omitted in large and more pretentious publications.

The presentation of Pathology and Etiology is excellent. Inflammations of a purely local character are clearly differentiated from those which are secondary and dependent upon systemic disease. These are fundamental principles, and it is essential that the student should appreciate their significance in order to be logical in his method of treatment. The Editor, Dr. James E. Newcomb, has added materially to the worth of the book by inserting many supplementary and critical notes, based upon his own wide experience.

W. F. DUDLEY.

THERAPEUTICS OF INFANCY AND CHILDHOOD. By Abraham Jacobi, M.D., LL.D. Third Edition. Philadelphia and London, J. B. Lippincott Co., 1903. xvii, 560 pp. 8vo. Price: Cloth, \$3.50.

The third edition of this well-known work is an improvement on the previous edition in many respects. Much of it has been rewritten, and it has been brought up to date. The title of the book does not give one a correct impression of the contents. It is more than a treatise on therapeutics, as it deals with the general management of children and their diseases. Incidentally, the author takes advantage of the opportunity of

putting on record a variety of thoughts on a variety of subjects, such as school management, contagious disease hospitals, etc. Some of these digressions are interesting and instructive, if not entirely what one would expect to find in a book on therapeutics. The author is characteristically dogmatic in his statements, rarely presenting conflicting authorities on any subject. It is therefore a good book for the student. The author has put in this book the result of his long experience, and the methods, wrinkles, and convictions based upon it. For this reason the book is a valuable collection of hints and aids in the management of children. It is especially to be recommended to the younger practitioner. It should be remembered by the reader that in many places the opinions are not those universally held by other pediatricists.

E. H. BARTLEY.

THE MEDICAL AND SURGICAL USES OF ELECTRICITY, INCLUDING THE X-RAY, FINSSEN LIGHT, VIBRATORY THERAPEUTICS, AND HIGH-FREQUENCY CURRENTS. By A. S. Rockwell, A.M., M.D. New Edition. N. Y., E. B. Treat & Co., 1903. xvi, 656 pp., 8vo. Price: Cloth, \$5.00.

This work follows the subjects of the well-known work of Beard and Rockwell, and is fully up to the present status of Electro-therapeutics. Thirty-two chapters are devoted to therapeutical discussion and the theory and application of the theory to relief of abnormal conditions is carefully elaborated and convincingly set forth. Chapters on Electro-Surgery and the various forms of light treatment, with a chapter each on Vibratory Therapeutics and High-Frequency Currents conclude the book.

Much that is written in this work is not new to students of electricity in its application to disease, but a good deal is the result of experience in advanced work by a thorough going investigator in this most attractive field. Dr. Rockwell's work is commended as an authoritative text on the subject.

WM. S. HUBBARD.

INTERNATIONAL CLINICS. Thirteenth Series. Vol. II, 1903. Phil., J. B. Lippincott & Co., 1903. viii, 311 pp., 6 pl., 8vo. Price: Cloth, \$2.00.

The feature of this volume is a symposium on the summer diarrheas of children. A. C. Cotton, M. Nicoll, T. S. Westcott, A. Hand, H. W. Conn and A. B. Marfan are the writers of the articles. Their ripe experience and knowledge are reflected in these practical and scientific papers—two important chapters on diseases of the pancreas are written by Drs. Opie and Deaver. Dr. John M. Taylor contributes a detailed description of different procedures in the rest treatment.

We remark, as we have on previous occasions, that the International Clinics are of great practical value.

A DICTIONARY OF MEDICAL SCIENCE. By Robley Dunglison, M.D., LL.D. Twenty-third Edition. Thoroughly Revised, with the Pronunciation, Accentuation, and Derivation of the Terms. By Thomas L. Stedman, A.M., M.D. Phil. & N. Y., Lea Bros. & Co., 1903. Price: Cloth, \$7.00; Leather, \$8.00.

The progress of medical science is best judged by comparing the successive editions of standard medical authorities and perhaps the dictionaries give most startling evidence of that progress when it is found that new editions are so frequently called for, and that the number of new terms and their definitions is so greatly increased in each succeeding edition.

The work before us is well known from long years

of steady usefulness to the profession. The twenty-third edition is an elaborate and yet concise dictionary of the present medical terminology. Numerous illustrations assist in the better understanding of various words and practices of the medical art.

The clearness of print and thinness of page make the volume, though over 1,200 pages in size, a most convenient book to use and its use is abundantly justified by the accuracy of its statements.

WM. S. HUBBARD.

INTERNATIONAL CLINICS. Vol. I, Thirteenth Series, 1903. Phil., J. B. Lippincott & Co., 1903. Col. front., viii, 306 pp., 24 pl., 8vo. Price: Cloth, \$2.00.

Such well-known investigators as Drs. Osler, Wilcox, Satterthwaite, Billings, Einhorn, Keen, Senn, Jonnesco, King, and Ballantyne contribute to this volume. They deal with therapeutic problems, with questions of diagnosis in the medical and surgical departments. These articles are all new, not culled from current literature. They are of the highest scientific value, clear, concise, well illustrated and instructive.

THE CRUSADE AGAINST TUBERCULOSIS. CONSUMPTION A CURABLE AND PREVENTABLE DISEASE. WHAT A LAYMAN SHOULD KNOW ABOUT IT. By Lawrence F. Flick, M.D. Phil., D. McKay, 1903. 295 pp., 12mo. Price: Cloth, \$1.00.

This book discusses the question of tuberculosis for the benefit of the public. The statement of what has been demonstrated as to the nature, origin, course and therapeutic management of the disease is singularly clear and attractive. Such books must bring about a better understanding of matters and make the public seek medical advice early. They are slowly learning that a cure is possible if the initial symptoms are appreciated and properly cared for.

NOSE AND THROAT WORK FOR THE GENERAL PRACTITIONER. By George L. Richards, M.D. N. Y., Internat. Journal of Surgery Co., 1903. 31, 330, vi pp., 8vo. Price: Cloth, \$2.00.

The author of this small book of 330 pages clearly states in his preface his aim to write a book for the general practitioner. He states that the graduate of a few years' standing missed the opportunities in his student days of acquiring a knowledge of the branch of medical science of which the book treats, and which has of late years so remarkably developed.

Reading the book with a view to ascertaining how well the author has succeeded in his aim, we find but few things stated by the author with which we are not in accord. We do not agree with the author, for example, in his recommendation of a spraying apparatus for applying cocaine to the nose. The reviewer believes that cocaine should invariably be applied under illumination of the nasal cavity and with a cotton-tipped probe. Again we regret that the author has followed the lead of other writers of text-books in omitting all mention of acute edematous obstructing inflammations of the larynx. These commonly fall under the observation and treatment of the general practitioner and should be included, we believe, in a book of this character. Having thus pointed out a few, not deeply significant errors, we cannot say less of the book than that we find it a strongly written, pithy and direct account of the common diseases of the regions included in the title. The book is sound, simple and will appeal to the clear-headed practitioner.

W. C. B.

INDEX TO VOLUME XVII.

Abortion and Premature Labor, Some Indications for Inducing. W. P. Pool.....	365	Bristow, A. T. Address Before the Long Island Alumni of Columbia University	15
Acute Gastro-Enteritis, Treatment of. G. F. Little.....	461	Bristow, A. T. Cholelithiasis; Cholecystotomy.....	236
Address Delivered Before the Long Island Alumni Association of Columbia University, at the Annual Dinner, November 19, 1902. A. T. Bristow.....	15	Bristow, A. T. Double Extirpation of External Carotids..	499
Ager, L. C.	464	Bristow, A. T. Hydronephrosis Occurring in a Horse-shoe Kidney; Nephrectomy; Recovery.....	234
Ager, L. C. Infant Diarrheal Mortality in Brooklyn. Its Cause and Preventability.....	56	Bristow, A. T. Location of Separated Ends of Sphincter Ani Muscle by Electrical Current. Union of Muscle Fibres by Suture.....	499
Ager, L. C. The Differential Diagnosis of Meningitis in Childhood	414	Bristow, A. T. Removal of the Middle Third of the Clavicle	290
Alderton, H. A.	20, 135	Bristow, A. T. Subperiosteal Resection of Middle Third of Clavicle	499
Alderton, H. A. Accumulation of Gas in Acute Suppuration of the Middle Ear.....	135	Bristow, A. T. Subperiosteal Resection of the Ulna.....	499
Alderton, H. A. Epithelioma of the Auricle.....	137	Bristow, A. T. The Hypothesis of Cohnheim Concerning Carcinoma	444
Alderton, H. A. Paralysis of the Facial Nerve from Caries of the Mastoid Process.....	137	Bristow, A. T. The Medical Society of the State of New York	475
Alderton, H. A. Ossiculectomy for Caries.....	137	Bristow, A. T. Unity of the Medical Profession.....	361
Alleman, L. A. W. A Case of Crypto-Glioma of the Retina.....	244	Brooklyn Gynecological Society, Proceedings of, 87, 140, 184, 281, 375, 422, 464, 543	
Alleman, L. A. W. Report of an Unusual Form of Ptosis, with the Result of Operation.....	90	Brooklyn Medical Society, Proceedings of 32, 90, 91, 143, 183, 290, 336, 422, 471, 544	
Amautotic Family Idiocy. B. Onuf.....	85	Brooklyn Pathological Society, Proceedings of 84, 133, 180, 244, 283, 333, 458	
Amputation at the Hip Joint for Sarcoma of Femur; Personal Statistics for this Operation During Last Fifteen Years. L. S. Pilcher.....	503	Brooklyn Society for Neurology, Proceedings of.....	91
Anatomy, Historical Epitome of. C. B. Bacon.....	20	Brooklyn Surgical Society, Proceedings of 26, 81, 178, 234, 327, 382, 495, 503, 532	
Anatomy of the Perirenal Fatty Tissue.....	344	Brooklyn's Water Supply.....	193, 292
Anesthesia, The Field of Nitrous Oxide Gas in General. W. A. Jewett.....	232	Brophy, T. W. Stereopticon Demonstration of the Surgical Treatment of Congenital Cleft Palate, With Exhibition of Patients	406
Angelucci's Modified Operation.....	433	Brophy, T. W. Surgical Treatment of Congenital Clefts of the Palate in Infants.....	404
Anomalous Vena Cava Inferior.....	344	Brush, A. C.	25, 229
Appendicitis and Oxyuria.....	342	Brush, A. C. The Medical Witness.....	263
Appendicitis Complicated with Fecal Fistula, Suppurative. F. W. Wunderlich.....	495	Buckley, C. F. Rodent Ulcer of the Face.....	382
Appendicitis, Gangrenous. G. Wackerhagen.....	383	Bullet Dislodged from Lateral Pharyngeal Wall and Expecterated Three Months After Receipt of Self-Inflicted Wound in Right Ear. G. R. Fowler.....	502
Appendicitis, Recurrent. A. E. Rae.....	82	Butler, W. E.	84, 143, 185, 189, 283, 425, 467, 529
Appendicitis, Tubercular. B. B. Mosher.....	82	Butler, W. E. Large Fibroid Uterus with Double Hydro-salpinx	86
Army Medical Corps Examinations.....	195	Butler, W. E. Report of a Case of Laceration of the Sub-clavian Artery from a Fractured Clavicle.....	64
Ascariides in the Etiology of Appendicitis, The Role of....	510	Butler, W. E. Report of Case; Pelvic Abscess.....	140
Atmocausis, Failure of	431	Butler, W. E. Report of Case; Pyosalpinx.....	140
Atrophic Cirrhosis of Liver with Cirrhosis of Pancreas and Cystic Kidney. H. P. DeForest.....	541	Byrne, S. J. List of Physicians Who Have Died in the Borough of Brooklyn During the Year 1902.....	92
Atropia; Its Uses and Contraindications in Ophthalmic Practice. P. C. Jameson.....	17	Campbell, W. F.	330, 331
Aural Polyp.....	432	Campbell, W. F. Carcinoma of the Jaw Two Years After Secondary Operation	533
Auricle, Epithelioma of the. H. A. Alderton.....	137	Campbell, W. F. Recurrent Carcinoma of Breast, Treated with the X-Ray.....	533
Auricle, Hematoma of. W. S. Shattuck.....	137	Cancer and Skin Disease, The X-Ray in.....	200
Auxiliary Library Association.....	194	Cancer of the Cervix, with Report of Cases, Palliative Treatment of. W. B. Chase.....	523
Babcock, W. W. An Essay Upon the General Principles of Preventive Medicine.....	40, 99, 151, 205, 252, 296, 344, 388	Cancer of the Choledochus.....	322
Bacon, C. B.	289	Cancer, Value of Radio-Therapy in Cutaneous and other Diseases	199
Bacon, C. B. Historical Epitome of Anatomy.....	20	Cancer, Value of the Roentgen Rays in.....	199
Baldwin, F.	88, 377, 380, 466, 469, 470, 543, 544	Carcinoma, A Growth Involving the Left Tonsil, Angle of the Jaw and Pharyngeal Pillars. W. S. Shattuck.....	78
Baldwin, L. G.	185, 186, 187, 188, 336, 337, 375, 377, 424	Carcinoma of Breast, Treated with the X-Ray, Recurrent. W. F. Campbell.....	533
Barber, C. F. A Case of Fracture of the Skull with a Very Prompt Epileptic Sequence.....	398	Carcinoma of the Jaw, Two Years After Secondary Operation. W. F. Campbell.....	533
Barber, C. F. A Case of Multiple Lipoma.....	492	Carotids for Malignant Disease of the Check and Upper Jaw, Simultaneous Excision of Both External. G. R. Fowler	337
Bartley, E. H.	139, 228, 289, 464	Cataract Operation, Expulsion of the Lens During. B. C. Colms	145
Bartley, E. H. Raw Cow's Milk in Infant Feeding.....	120	Cerebral Hemorrhage; Operation; Recovery. A. H. Bogart.....	320
Beers, N. T.	183	Cerebral Tumor, Analysis of Case. H. P. DeForest.....	346
Belcher, W. N.	29, 454, 542	Certified Milk	249
Belcher, W. N. National Formular.....	441	Chapman, W. L. Painful and Protracted First Stage of Labor	10
Belcher, W. N. Specimen: Cystic Kidney.....	540	Chase, W. B.	184, 186, 187, 327, 337, 376, 377, 378, 423, 466
Belcher, W. N. Specimen: Sarcoma of Jaw.....	540	Chase, W. B. Palliative Treatment of Cancer of the Cervix, with Report of Cases	523
Bell, R. Symptomatology of Leptomeningitis.....	417	Chase, W. B. Ruptured Tubal Pregnancy.....	87
Blake, J. E.	456		
Bogart, A. H. Cerebral Hemorrhage; Operation; Recovery.....	329		
Bogart, A. H. Suture of Fractured Patella.....	81		
Bogart, J. B.	9		
Bogart, J. B. Double Congenital Talipes Equino Varus.....	327		
Bogart, J. B. Excision of the Knee for Tuberculosis.....	328		
Bogart, J. B. Occlusion of Cystic Duct; Cholecystectomy.....	26		
Bossi's Dilator. C. Jewett.....	281		
Brain Abscess? Shall the Ear Surgeons Operate for.....	432		
Brain Tumor, Successful Operation for. M. Figueira.....	505		
Braislin, W. C.	70		
Braislin, W. C. Serous Exudation into the Middle Ear During the Course of Pneumonia.....	233		
Braislin, W. C. Teratoma of the Ear.....	290, 322		
Brinsmade, W. B.	337, 471		
Bristow, A. T.	81, 183, 238, 330, 333, 337, 508, 545		

- Chase, W. B. Some Considerations on Intra-Pelvic Infection with Reference to Rational Treatment..... 127
- Chase, W. B. The Dilatory Nurse..... 547
- Chase, W. B. Tubal Pregnancy. Clinically Considered, with a Plea for Its Early Recognition and Radical Treatment..... 312
- Children, Causes and Relief of the Summer Mortality Among Brooklyn. C. LeG. Kerr..... 221
- Children, Non-Congenital Heart Disease in. C. LeG. Kerr..... 242
- Cholecystitis During Pregnancy or the Puerperium..... 431
- Cholecystitis with Rupture of Gall Bladder. O. A. Gordon..... 179
- Cholelithiasis; Cholecystotomy. A. T. Bristow..... 236
- Cholera Infantum, Treatment of. W. C. Schoenijahn..... 463
- Clark, F. H..... 456
- Clark, J. E..... 194
- Clark, T. E..... 536
- Clavicles, Congenital Absence of the..... 344
- Clayland, J. M..... 32, 33
- Clinical Study of Complications of Suppurative Middle Ear Disease..... 201
- Closure of Wounds..... 405
- Clowminzer, W. H..... 289
- Collins, B. C..... 20, 70, 134, 427
- Collins, B. C. Expulsion of the Lens During a Cataract Operation..... 145
- Collins, B. C. Two Cases of Chronic Exudative Middle Ear Inflammation..... 233
- Collins, B. C. Wound of the Cornea..... 145
- Combes, R. C. F. The Etiology of Insanity..... 225
- Complete Prolapse of Uterus; Ventro-Fixation; Report of Case. S. J. McNamara..... 422
- Condyloma Acuminatum Vulvæ. L. W. Pearson..... 26
- Congenital Clefts of the Palate in Infants, Surgical Treatment of. T. W. Brophy..... 404
- Congenital Cleft Palate, With Exhibition of Patients, Stereopticon Demonstration of the Surgical Treatment of. T. W. Brophy..... 406
- Congenital Microphthalmos with Coloboma of Iris and Choroid, Case of. J. S. Wood..... 90
- Congenital Ptosis, Presentation of a Case of. D. W. Meyer..... 144
- Conservative Surgery on the Pelvic Adnexa, Personal Observations on the Remote Results of. J. O. Polak..... 168
- Conway, J. J..... 293
- Corcoran, W. J..... 186, 189
- Cornea, Wound of the. B. C. Collins..... 145
- Cornwall, E. E..... 25, 71, 288, 385
- Correspondence..... 547
- Coughlin, R. E. Does Lodge Doctoring Pay?..... 402
- Cox, C. N..... 80
- Cystic Duct, Occlusion of; Cholecystectomy. J. B. Bogart..... 26
- Cystic Kidney; Specimen. W. N. Belcher..... 540
- Death of Fetus in Delayed Second Stage of Labor; Children Born with Cord Coiled about Neck. J. O. Polak..... 469
- DeForest, H. P..... 536, 543
- DeForest, H. P. Atrophic Cirrhosis of Liver with Cirrhosis of Pancreas and Cystic Kidney..... 541
- DeForest, H. P. Cerebral Tumor; Analysis of Case..... 536
- DeForest, H. A. Report of Cases; Uterine and Rectal Polypi..... 138
- DeLatour, H. B..... 331
- DeLatour, H. B. Endothelioma of the Pleura..... 179
- DeLorme, M. F..... 452
- Dermoid Cyst, Preliminary Report of Case of Double. C. R. Hyde..... 187
- Dickinson, R. L..... 14, 282, 283, 379, 529, 530, 543, 544
- Dickinson, R. L. Ventral Suspension and Ventral Fixation for Prolapse of the Bladder with the Uterus..... 259
- Diphtheria or the Ear, A Case of Diphtheritic Gangrene with Diphtheria, Report of Some Cases of. A. E. Shipley..... 493
- Doctor on the Witness Stand, A Few Suggestions to the. E. L. Prentiss..... 24
- Does Lodge Doctoring Pay? R. E. Coughlin..... 402
- Double Congenital Talipes Equino Varus. J. B. Bogart..... 327
- Drace, J. H..... 471
- Dudley, W. F. Cancer of the Larynx..... 76
- Dunfield, W. J. Report of Case, Sarcoma of Kidney..... 458
- Duodenal Hepatic Region, Various Peritoneal Adhesions of the. J. P. Warbasse..... 14
- Duodenum, Some Observations on Perforating Ulcer of the. J. P. Warbasse..... 5
- E. Accumulation of Gas in Acute Suppuration of the Middle. H. A. Alderton..... 135
- Ear Cases, A Few Remarks on Some Every-Day. J. E. Sheppard..... 319
- Ear Diseases of School Children..... 432
- Ear During the Course of Pneumonia, Serous Exudation into the Middle. W. C. Braislin..... 233
- Ear Inflammation, Two Cases of Chronic Exudative Middle. B. C. Collins..... 233
- Ear, Teratoma of the. W. C. Braislin..... 322
- Earache and Discharge, Report of a Case of Sudden Death Following. S. H. Lutz..... 232
- Ectopic Gestation; Operation; Death. J. W. Hyde..... 465
- Ectopic Pregnancy, Recurrent. J. P. Murphy..... 84
- Edson, B..... 290, 464
- Edson, B. Etiology of Leptomenigitis..... 416
- Effect of Fatigue on the Nuclei of Voluntary Muscle Cells..... 343
- Emery, Z. T. Notes on Urinary Casts..... 435
- Emphysema of the Gall-bladder. J. R. Kevin..... 545
- Endothelioma of the Pleura. H. B. De Latour..... 179
- Epicarin as an Antipruritic..... 200
- Erdmann, A. F..... 457
- Erdmann, A. F. A Report on Present Methods of Administering General Anesthetics in the Brooklyn Hospitals, with Comments..... 437
- Ergot, Uses of. A. T. Livingston..... 355
- Essences of Essential Oils for Disinfection of the Hands, The Use of..... 280
- Eustachian Tube, The Value of Electrolysis in the..... 200
- Examinations for Internes, Written..... 291
- Expulsion of Eyeball from Orbit in a Patient with "Bright's Disease," Report of a Unique Case of. J. A. Kene..... 283
- External Carotids, Double Extirpation of. A. T. Bristow..... 499
- Extra-Uterine Gestation at Full Term; Operation; Death. Report of Case. V. L. Zimmerman..... 544
- Fairbairn, H. A..... 333, 458
- Fibroid of Uterus; Panhysterectomy. O. A. Gordon..... 467
- Fibroid Uterus with Double Hydrosalpinx, Large. W. E. Butler..... 86
- Fibroma of the Cornea, Presentation of a Case of. D. W. Meyer..... 144
- Figuiera, M..... 500, 503, 508
- Figueira, M. Successful Operation for Brain Tumor..... 505
- Fistula in Ano, Concerning. W. C. Wood..... 480
- Foote, L. N. Painful and Protracted First Stage of Labor..... 10
- Foreign Body in the Lens, Presentation of a Specimen of. D. W. Meyer..... 144
- Fowler, G. R..... 8, 235, 237, 240, 328, 332, 334, 499, 500, 502
- Fowler, G. R. Bullet Dislodged from Lateral Pharyngeal Wall and Expectored Three Months After Receipt of Self-Inflicted Wound in Right Ear..... 502
- Fowler, G. R. Hematemesis Following Appendicectomy, with the Report of a Case and Presentation of Specimen and Slides..... 310
- Fowler, G. R. Progress in Surgery..... 342, 510
- Fowler, G. R. Report of a Case of Gunshot Wound of the Neck..... 57
- Fowler, G. R. Simultaneous Excision of Both External Carotids for Malignant Disease of the Cheek and Upper Jaw..... 237
- Fowler, G. R. Talipes-Equinus; Operation; Cure..... 532
- Fowler, G. R. The Skin as a Source of Wound Infection..... 315
- Fowler, R. S. Subpectoral Abscess..... 521
- Fracture of the Skull with a Very Prompt Epileptic Sequence, A Case of. C. F. Barber..... 398
- Fraser, H. E..... 183
- Fraser, H. E. Pathology of Gonorrhea of the Prostate..... 180
- Fuhs, J..... 459
- Fuhs, J. Gastric Hemorrhage..... 307
- Gall-Bladder into the Duodenum, Perforation of. F. W. Wunderlich..... 460
- Gardiner, S. H..... 336
- Gastric Hemorrhage. J. Fuhs..... 307
- Gastric Ulcer, Surgical Treatment of..... 510
- Gastrostomy by Means of Torsion of Mucous Membrane..... 343
- Glaucoma. J. C. Hancock..... 278
- Golding, J. F..... 429
- Gonorrhea in Women. A. A. Hussey..... 171
- Gonorrhea of the Prostate, Pathology of. H. E. Fraser..... 180
- Goodrich, Esq., W. W. The Legal Status of the X-Ray..... 515
- Gordon, O. A..... 184, 189
- Gordon, O. A. Cholecystitis with Rupture of Gall-Bladder..... 179
- Gordon, O. A. Fibroid of Uterus; Panhysterectomy..... 467
- Gordon, O. A. Penetrating Wounds of the Intestine..... 178
- Gunshot Wound of the Neck, Report of a Case of. G. R. Fowler..... 57
- Hancock, J. C..... 20, 545
- Hancock, J. C. Glaucoma..... 278
- Harrigan, J. Contracted Kidney..... 460

- Harrigan, J. Large White Kidney..... 459
- Head Injuries: Their Diagnoses. A. Rae..... 484
- Hematemesis Following Appendicectomy, with the Report of a Case and Presentation of Specimen and Slides. G. R. Fowler..... 310
- Hemorrhage Tubercular (?) Polypus of the Conjunctiva, Report of. H. H. Waugh..... 90
- Hemorrhoids by Injection, The Treatment of. A. H. Terry..... 488
- Hodges, E..... 231, 427
- Hodges, E. The Business Aspect of Medicine..... 274
- Hookworm Disease (Uncinariasis). A Newly Recognized Factor in American Anemias. C. W. Stiles..... 51
- Hoople, H. N..... 20, 24, 286
- Hoople, H. N. Economics of the Practice of Medicine.... 268
- Hopkins, G. G. A New Suggestion in the Treatment of Uterine Carcinoma by the Combined Use of Finsen Light and Roentgen Ray..... 517
- Hotchkiss, H. T..... 455
- Hotchkiss, H. T. A Case of Intestinal Paresis in a Child.. 427
- Howe, A. C..... 70, 231
- Howe, A. C. Malignant Neoplasms of the Nares and Nasopharynx..... 75
- Hubbard, W. S..... 427
- Hubbard, W. S. Tubercular Disease of Knee-Joint..... 32
- Hurd, Jr., W. B..... 229
- Hussey, A. A. Gonorrhea in Women..... 171
- Hutchinson, W. M..... 139
- Hyde, C. R..... 143, 185, 189, 425, 530
- Hyde, C. R. Medical News, 35, 95, 148, 195, 249, 294, 340, 387, 473, 513, 548
- Hyde, C. R. Palmer's Voisellum Forceps..... 88
- Hyde, C. R. Preliminary Report of Case of Double Ovarian Dermoid Cyst..... 187
- Hyde, J. W..... 324
- Hyde, J. W. Ectopic Gestation; Operation; Death..... 465
- Hyde, J. W. Hysterectomy for General Fibroid Condition of Uterus—Seventeen Years After Galvano-Cautery Amputation of Cervix..... 464
- Hydronephrosis Occurring in a Horse-Shoe Kidney: Nephrectomy; Recovery. A. T. Bristow..... 234
- Hydrosulphate of Sodium as a Depilatory. C. Jewett..... 282
- Hyperleucocytosis Suggesting Abdominal Suppuration; Recovery Without Operation. R. W. Westbrook..... 534
- Hypothesis of Cohnheim Concerning Carcinoma, The. A. T. Bristow..... 444
- Hysterectomy for General Fibroid Condition of Uterus—Seventeen Years After Galvano-Cautery Amputation of Cervix. J. W. Hyde..... 464
- Ichthyosis..... 511
- Ill, E. J..... 425
- Ill, E. J. The Lateral and Retro-Positions of the Immobile Uterus; Their Clinical Significance and Treatment..... 396
- Impairment of Vision Following Severe Hemorrhage..... 434
- Index Medicus, An..... 94
- Index Medicus, Needs of the..... 386
- Infant Diarrhea Mortality in Brooklyn; Its Cause and Preventability. L. C. Ager..... 56
- Infant Feeding, Raw Cow's Milk in. E. H. Bartley..... 120
- Infantile Susceptibility to Tuberculosis..... 546
- Ingalls, J. W..... 247
- Ingalls, J. W. Case of Iritis..... 545
- Ingalls, J. W. Report of a Case of Spontaneous Extrusion of Lens..... 145
- Ingalls, J. W. Result of Injury to Eyeball Fifteen Years Ago..... 286
- Inguinal Hernia with Apparent Reduction, Strangulated. T. B. Spence..... 383
- Inguinal Hernia with Incarceration of the Vermiform Appendix. T. B. Spence..... 383
- Injury to Eyeball Fifteen Years Ago, Result of. J. W. Ingalls..... 286
- Insanity, The Etiology of. R. C. F. Combes..... 225
- Intestinal Invagination, Radical Treatment of..... 510
- Intestinal Paresis in a Child. H. T. Hotchkiss..... 427
- Intra-Pelvic Infection with Reference to Rational Treatment, Some Considerations on. W. B. Chase..... 127
- Iritis, Case of. J. W. Ingalls..... 545
- Jameson, P. C..... 287, 545
- Jameson, P. C. Atropia; Its Uses and Contra-indications in Ophthalmic Practice..... 17
- Jewett, C..... 13, 88, 89, 191, 327, 377, 378, 385, 424
- Jewett, C. Bossi's Dilator..... 281
- Jewett, C. Hydrosulphate of Sodium as a Depilatory..... 282
- Jewett, C. Progress in Obstetrics and Gynecology..... 430, 509
- Jewett, C. Remarks Upon Some of the Recent Contributions to Obstetric Therapeutics..... 1
- Jewett, C. Ruptured Dermoid Cyst: Peritonitis; Operation; Recovery..... 283
- Jewett, C. Specimen from an Ovarian Dermoid..... 466
- Jewett, W. A. The Field of Nitrous Oxide Gas in General Anesthesia..... 232
- Jones, P. M..... 175
- Journal, A Larger..... 93
- Judd, A. M..... 11
- Judd, A. M. A Case of Puerperal Psoriasis..... 66
- Keenan, H. C..... 143, 466, 531
- Keenan, H. C. Large Ovarian Cyst..... 468
- Keenan, H. C. Peritoneal Adhesions in the Pelvis..... 525
- Kene, J. A. Report of a Unique Case of Expulsion of Eyeball from Orbit in a Patient with "Bright's Disease".... 283
- Kevin, J. R. Emphysema of the Gall-Bladder..... 545
- Kennedy, J. C..... 134, 337
- Kerr, C. LeG..... 241
- Kerr, C. LeG. Causes and Relief of the Summer Mortality Among Brooklyn Children..... 221
- Kerr, C. LeG. Non-Congenital Heart Disease in Children. 242
- Kerr, C. LeG. Report of a Case of Post-Diphtheritic Paralysis..... 139
- Kerr, C. LeG. Treatment of the Summer Diarrheas of Infants..... 368
- Kidney, Contracted. J. Harrigan..... 460
- Kidney, Large White. J. Harrigan..... 459
- Kinne, W..... 464
- Kirk, F. J..... 471
- Knee, Pathological Dislocation of the. L. S. Pilcher..... 505
- Knee-Joint, Tubercular Disease of. W. S. Hubbard..... 32
- Kevin, J. R..... 236
- Kevin, J. R. Fracture of the Patella..... 81
- Labor, Painful and Protracted First Stage of. W. L. Chapman and L. N. Foote..... 10
- Lambert, A..... 374
- Lambert, F. E. Regional Tuberculosis..... 129
- Lambert, F. E. Scarlatina..... 362
- Langstaff, L. G..... 456
- Langstaff, L. G. Twist with Adhesion of Umbilical Cord in Still-Born Fetus..... 469
- Larynx, Cancer of the. W. F. Dudley..... 76
- Larynx, Lupus of. L. H. Miller..... 80
- Lateral and Retro-Positions of the Immobile Uterus; Their Clinical Significance and Treatment. E. J. Ill..... 396
- Lee, J. A..... 541
- Lee, J. A. Foreign Body Removed from Trachea; Tracheotomy..... 460
- Legal Status of the X-Ray, The. W. W. Goodrich, Esq.... 515
- Lens, Report of a Case of Spontaneous Extrusion of. J. W. Ingalls..... 145
- Leptomenigitis, Etiology of. B. Edson..... 416
- Leptomenigitis, Symptomatology of. R. Bell..... 417
- Library Fund..... 34, 94
- Light and Radio-Therapy, A Brief History of the Therapy of Various Forms of. J. Mac F. Winfield..... 163
- Light Treatment in Lupus and Other Diseases of the Skin.. 511
- Little, F..... 211
- Little, F. History of Meningitis..... 413
- Little, G. F..... 7
- Little, G. F. Treatment of Acute Gastro-Enteritis..... 461
- Lipoma, A Case of Multiple. C. F. Barber..... 494
- Livingston, A. T..... 372, 375
- Livingston, A. T. Uses of Ergot..... 355
- Location of Separated Ends of Sphincter Ani Muscle by Electrical Current. Union of Muscle Fibres by Suture. A. T. Bristow..... 499
- Lombard, G. D..... 372
- Long Island Alumni Association of the Medical Department of Columbia University..... 53
- Long Island College Hospital, The Presidency of the..... 47
- Long Island Medical Society, Proceedings of..... 32, 33, 70, 231, 288, 384, 427
- Lupus Erythematosus, A Study of the Disease..... 134
- Lutz, S. H..... 134
- Lutz, S. H. Malignant Neoplasms of the Ear..... 72
- Lutz, S. H. Report of Case; Nasal Polyp from a Child of Seven Years..... 138
- Lutz, S. H. Report of Case of Sudden Death Following Embrace and Discharge..... 13
- Lutz, S. H. Secondary Blood Clot from Injury at Site of Wound After Mastoid Operation..... 138

- Lymph Channels in Suppurative Middle-Ear Disease, Study of the Complications of the..... 201
- M'Carty, T. E. 293
- MacCoy, C. Some Observations on the Treatment of Neurasthenia at the Dispensary Clinic..... 399
- MacEvitt, J. C.,
84, 88, 141, 142, 185, 190, 325, 337, 377, 379, 460, 470
- MacEvitt, J. C. Report of Case; Persistent Capillary Oozing Following the Breaking Up of Dense Pelvic Adhesions; Hysterectomy to Control Hemorrhage..... 423
- McNamara, S. J. Report of Case; Complete Prolapse of Uterus; Ventro-Fixation 422
- McNaughton, G. 140, 142, 380, 424, 531
- McNaughton, G. Epidemic Parotitis with Metastasis to the Female Genitalia 115
- McNaughton, G. Report of Case; Miscarriage Mistaken for Ectopic Gestation in a Woman with Double Vagina.. 543
- Madden, W. 142, 186, 189, 469, 528
- Malaria Map 443
- Malignant Neoplasms of the Ear. S. H. Lutz..... 72
- Malignant Neoplasms of the Nares and Nasopharynx. A. C. Howe 75
- Malignant Pustule 471
- Mammary Carcinoma; Metastatic Growths in Both Ovaries. 431
- Mastoid Operation, Secondary Blood Clot from Injury at Site of Wound After. S. H. Lutz..... 138
- Mastoid, Tuberculosis of. J. E. Sheppard..... 133
- Mastoiditis with Diabetes..... 432
- Medical Lectureship in Brooklyn, An Annual..... 93
- Medical Library and Historical Journal, The..... 94, 546
- Medical Life, A Lighter Side of..... 147
- Medical News. C. R. Hyde,
35, 95, 148, 195, 249, 294, 340, 387, 473, 513, 548
- Medical Nomenclature 428
- Medical Profession, Unity of the. A. T. Bristow..... 361
- Medical Society, County of Kings, Proceedings of,
228, 324, 372, 385, 406, 452
- Medical Society, County of Kings; Report of the Annual Election of Officers for 1903..... 69
- Medical Society, County of Kings; Secretary's Report,
31, 132, 175, 177, 281, 323, 371, 492, 531
- Medical Society, County of Kings; Section in Laryngology, Rhinology and Otolaryngology, Proceedings of..... 72, 232
- Medical Society, County of Kings; Section on Ophthalmology, Proceedings of..... 90, 144, 286, 337
- Medical Society, County of Kings; Section in Pediatrics; Proceedings of..... 27, 89, 139, 413, 461, 493
- Medical Society, State of New York..... 512
- Medical Society of the State of New York. A. T. Bristow. 475
- Medical Witness, The. A. C. Brush..... 263
- Medicine in Kings County, Early History of. W. Schroeder. 275
- Medicine, Economics of the Practice of. H. N. Hoople.... 268
- Medicine, The Business Aspect of. E. Hodges..... 274
- Memorial Address. J. P. Warbasse..... 65
- Meningitis in Childhood, The Differential Diagnosis of. L. C. Ager..... 414
- Meningitis, History of. F. Little..... 413
- Meningitis, Prognosis and Treatment of. J. R. Stivers.... 419
- Meningitis, Tubercular. R. T. Wheeler..... 420
- Meyer, D. W. 337
- Meyer, D. W. Presentation of a Case of Congenital Ptosis. 144
- Meyer, D. W. Presentation of a Case of Fibroma of the Cornea 144
- Meyer, D. W. Presentation of a Specimen of a Foreign Body in the Lens..... 144
- Milk Commission, The..... 146
- Miller, L. H. Lupus of Larynx..... 80
- Miscarriage Mistaken for Ectopic Gestation in a Woman with Double Vagina; Report of Case. G. McNaughton... 543
- Mississippi Valley Medical Association..... 511
- Morrison, R. J. 25
- Morton, H. H. 181
- Moss, W. 422
- Mosher, B. B. 33
- Mosher, B. B. Tubercular Appendicitis 82
- Mucosis Fungoides Treated by X-Ray. Report of a Case of.. 199
- Multiple Neuro-Fibroma Cutis 511
- Multiple Tubercular Strictures of the Intestine. W. C. Wood 506
- Muren, G. M. Diagnosis of Primary Syphilis..... 124
- Murphy, P. P. Recurrent Ectopic Pregnancy 81
- Murray, A. 133, 138, 183, 286, 336, 337, 459, 536, 542
- Napier, C. D. 32
- Nasal Polyp from a Child of Seven Years; Report of Case. S. H. Lutz..... 138
- National Bureau of Medicines and Foods..... 339
- National Formulary. W. N. Belcher..... 441
- Necrosis of Uterine Fibroid After Labor..... 431
- Neilson, J. C. E. Parasitic Intestinal Obstruction..... 89
- Nephrectomy, Persistent Sinus Following. W. C. Wood... 507
- Neurasthenia at the Dispensary Clinic, Some Observations on the Treatment of. C. MacCoy..... 399
- New Books:
- A Brief Necropsy and Its Medico-Legal Relation. G. Schmitt 258
- American Text-Book of Obstetrics for Practitioners and Students 97
- American Year-Book of Medicine and Surgery. 306, 434
- Anatomy. W. H. Rockwell..... 256
- Anatomy by American Authors, A Text-Book of. 306
- Anatomy of the Human Peritoneum and Abdominal Cavity, Considered from the Standpoint of Development and Comparative Anatomy. G. S. Huntington..... 306
- Anus, Rectum, and Pelvic Colon, A Treatise on Diseases of the. J. P. Tuttle 256
- Bacteriologic Technique, Elements of. J. W. H. Eyre.... 162
- Bandaging, Principles and Practice of. G. G. Davis..... 161
- Children, Care and Feeding of. E. Holt..... 434
- Clinical Anatomy, Text-Book of. D. N. Eisendrath..... 549
- Compend of Human Anatomy. S. O. L. Potter..... 550
- Ear, Disease of the. E. B. Dench..... 551
- Elementary Hygiene for the Tropics. A. Ames..... 162
- Eye, Diseases of the. G. E. De Schweinitz..... 98
- Eye, Nose, Throat and Ear, A Treatise on Diseases of the Fractures, The Treatment of. C. L. Scudder..... 97
- Gynecology, Manual of. H. T. Byford..... 161
- Gynecology; Obstetrics; Menopause..... 97
- Handbook of Materia Medica, Pharmacy and Therapeutics. Heart and Arterial System, Diseases of the. R. H. Babcock 353
- How to Succeed in the Practice of Medicine..... 305
- International Clinics 306
- International Clinics. H. W. Cattell..... 306
- International Clinics. Thirteenth Series, Vol. I..... 554
- International Clinics. Thirteenth Series, Vol. II..... 554
- International Medical Annual..... 434
- International Text-Book of Surgery. American and British Authors 98
- Infancy and Childhood, The Diseases of. L. E. Holt.... 258
- Infancy and Childhood, The Diseases of. H. Koplik.... 258
- Legal Medicine and Toxicology, A Text-Book of. Vol. I. F. Peterson and W. S. Haines..... 354
- Manual of Dissection and Practical Anatomy. W. T. Eckley and C. B. Eckley..... 162
- Manual of Otolaryngology. G. Bacon..... 38
- Materia Medica, Therapeutics, Pharmacy, Prescription Writing and Medical Latin. W. Schleif..... 39
- Materia Medica, Therapeutics and Pharmacology, A Text-Book of. G. F. Butler..... 97, 161
- Materia Medica and Therapeutics, Practical Treatise on. R. Bartholows 352
- Medical Jurisprudence and Toxicology, Text-Book of..... 162
- Medical Jurisprudence, Insanity and Toxicology, Manual of. H. C. Chapman..... 354
- Medical Microscopy. T. E. Oertel..... 394
- Medical Science, A Dictionary of. R. Dunglison..... 554
- Medicine, A Text-Book of Practical. W. G. Thompson... 255
- Medicine, Progressive. H. A. Hare..... 306, 352
- Membranous Catarrh of the Intestines. C. von Noorden. 255
- Morphinism, The Mattison Method in. J. B. Mattison... 257
- Nephritis. C. von Noorden..... 255
- Nervous and Mental Diseases. A. Church and F. Peterson 550
- New Hampshire Medical Society, Transactions of the... 305
- Nose, Pharynx and Ear, Diseases of. H. Gradle..... 38
- Nose and Throat Work for the General Practitioner..... 554
- Nothnagel's Encyclopedia, American Edition of..... 39
- Nothnagel's Practice, American Edition of. Diseases of the Bronchi, Lungs and Pleura. F. A. Hoffman, O. Rosenbach, E. Aufrecht, J. H. Musser..... 305
- Nothnagel's Practice, American Edition of. Diseases of the Liver, Pancreas and Suprarenal Capsules. L. Oser, H. Quinke, E. Neusser and G. Hoppe-Seyler..... 353
- Nothnagel's Practice, American Edition of. Diseases of the Stomach. F. Riegel..... 354
- Nursing, Practical Points in. E. A. M. Stoney..... 434
- Obesity: The Indications for Reduction Cures..... 255
- Obstetrics, A Manual of. A. F. A. King..... 549

New Books:—Continued.

- Obstetrics, A Text-Book of. B. C. Hirst..... 352
- Obstetrics, Text-Book of. B. C. Hirst..... 549
- Pancreas and Their Surgical Treatment, Diseases of the. A. W. M. Robson and B. G. A. Moynihan..... 68
- Pathology and Pathological Anatomy, Text-Book of..... 551
- Practical Diagnosis. H. A. Hare..... 38
- Practical Medicine Series of Year-Books, Vol. II..... 250
- Practical Medicine Series of Year-Books, Vol. III. C. A. Wood, A. H. Andrews, T. M. Hardie..... 258
- Practical Medicine Series of Year-Books, Vol. IV. E. C. Dudley and W. Healy..... 354
- Practical Medicine Series of Year-Books, Vol. VI. F. Billings and S. C. Stanton..... 39
- Practical Medicine Series of Year-Books, Vol. VII. G. F. Butler, H. B. Favill, N. Bridge and H. N. Moyer..... 38
- Practical Medicine Series of Year-Books, Vol. VIII. Pediatrics and Orthopedic Surgery. W. S. Christopher, J. Ridlon and S. J. Walker..... 161
- Progressive Medicine. H. A. Hare and H. R. M. Landis..... 256
- Rectum and Anus, Diseases of. S. G. Gant..... 39
- Reference Handbook of the Medical Sciences, Vol. V..... 305
- Regional Minor Surgery. G. G. Van Schaick..... 162
- Saunders' Medical Hand-Atlases. Atlas and Epitome of Abdominal Hernias. G. Sultan..... 161
- Saunders' Medical Hand-Atlases. Atlas and Epitome of Diseases of the Mouth, Pharynx and Nose. L. Grunwald..... 553
- Saunders' Medical Hand-Atlases. Atlas and Epitome of Human Histology and Microscopic Anatomy. J. Sobotta..... 394
- Saunders' Medical Hand-Atlases. Atlas and Epitome of Otology. G. Bruhl and A. Politzer..... 38
- Skin, Diseases of the. J. Grindon..... 97
- Skin, Diseases of the. H. R. Crocker..... 257
- Skin, Diseases of the. A. Schalek..... 258
- Special Pathology, Compend of. A. E. Thayer..... 394
- Spectacles and Eyeglasses. R. J. Philips..... 68
- Surgery, A Text-Book of. G. E. Brewer..... 550
- Surgical Emergencies. The Surgery of the Head..... 352
- Surgical Principles and Surgical Diseases of the Face, Mouth and Jaw, Text-Book of. H. H. Grant..... 39
- Text-Book of the Practice of Medicine. J. M. Anders..... 554
- The Care of the Baby. J. P. C. Griffith..... 474
- The Crusade Against Tuberculosis. Consumption a Curable and Preventable Disease. What a Layman Should Know About It. L. F. Flick..... 554
- The Medical and Surgical Uses of Electricity, Including the X-Ray, Finsen Light, Vibratory Therapeutics, and High-Frequency Currents. A. S. Rockwell..... 554
- The Practice of Obstetrics by American Authors. C. Jewett..... 550
- The Story of a Living Temple..... 306
- Therapeutics of Dry Hot Air. C. E. Skinner..... 257
- Therapeutics of Infancy and Childhood. A. Jacobi..... 553
- Tuberculosis. N. Bridge..... 551
- Twentieth Century Practice. T. L. Stedman..... 305
- New York Prison..... 98
- Northridge, W. A..... 30, 89, 243, 290, 494
- Oatman, E. L..... 287
- Obituaries..... 293, 429, 546
- Object Lesson in Sanitation..... 193
- Obstetric Therapeutics, Remarks Upon Some of the Recent Contributions to. C. Jewett..... 1
- Onuf, B..... 505
- Onuf, B. Amaurotic Family Idiocy..... 85
- Opiates for Pain, Concerning the Use of..... 472
- Ossiculectomy for Caries. H. A. Alderton..... 137
- Otitis Media in Infancy..... 432
- Otology, Static Electricity in..... 433
- Ovarian Cyst; Large. Fluid Partially Withdrawn When First Tapped; Sac Completely Emptied on Third Tapping. H. C. Keenan..... 468
- Ovarian Cysts with Twisted Pedicle..... 375
- Ovarian Dermoid, Specimen from an. C. Jewett..... 466
- Ovarian Dermoid Cysts, Two..... 375
- Ovary, Sarcoma of. A. Rae..... 81
- Ozone in Middle-Ear Catarrh, The Use of..... 201
- Palmer's Volsellum Forceps. C. R. Hyde..... 88
- Pancreas, Anomalies of the..... 344
- Pancreas, Cyst of the; Operation; Cure. R. W. Westbrook..... 535
- Panophthalmitis with Orbital Cellulitis; Report of Case. J. S. Wood..... 284
- Paralysis, Report of a Case of Post-Diphtheritic. C. Letg. Kerr..... 139
- Paralysis of the Facial Nerve from Caries of the Mastoid Process. H. A. Alderton..... 137
- Parasitic Intestinal Obstruction. J. C. E. Nielsen..... 89
- Parotitis with Metastasis to the Female Genitalia; Epidemic. G. McNaughton..... 115
- Parrish, P. L..... 241, 243
- Patella; Fracture of the. J. R. Kevin..... 81
- Patella, Suture of Fractured. A. H. Bogart..... 81
- Paternalism of the Government as it Affects Physicians..... 386
- Pearson, L. W..... 483, 500
- Pearson, L. W. Condyloma Acuminatum Vulvæ..... 26
- Pelvic Abscess; Report of Case. W. E. Butler..... 140
- Penetrating Wounds of the Intestine. O. A. Gordon..... 178
- Perforation of Uterus with Douche Nozzle by Midwife After Criminal Abortion. J. O. Polak..... 376
- Perineal Prostatectomy. W. A. Sherwood..... 240
- Peritoneal Adhesions in the Pelvis. H. C. Keenan..... 525
- Peritonitis, Chronic..... 221
- Peritonsillar Abscess, An Unusual Case of. W. S. Shattuck..... 233
- Persistent Capillary Oozing Following the Breaking Up of Dense Pelvic Adhesions; Hysterectomy to Control Hemorrhage; Report of Case. J. C. MacEvitt..... 423
- Physicians Who Have Died in the Borough of Brooklyn During the Year 1902, List of. S. J. Byrne..... 92
- Pilcher, L. S..... 7, 507
- Pilcher, L. S. Amputation at the Hip-Joint for Sarcoma of Femur; Personal Statistics for this Operation During Last Fifteen Years..... 503
- Pilcher, L. S. Pathological Dislocation of the Knee..... 505
- Pilcher, P. M..... 455
- Pilcher, P. M. Illuminating Gas Poisoning..... 216
- Pneumococcal Appendicitis..... 343
- Poisoning, Illuminating Gas. P. M. Pilcher..... 216
- Polak, J. O..... 70, 184, 191, 326, 385, 427, 465, 467, 530, 544
- Polak, J. O. Death of Fetus in Delayed Second Stage of Labor; Children Born with Cord Coiled about Neck..... 469
- Polak, J. O. Perforating of Uterus with Douche Nozzle by Midwife After Criminal Abortion..... 376
- Polak, J. O. Personal Observations on the Remote Results of Conservative Surgery on the Pelvic Adnexa..... 168
- Polak, J. O. Report of Case; Puerperal Toxemia..... 470
- Pomeroy, R. H..... 282, 470
- Pool, W. P..... 190, 283, 381
- Pool, W. P. Some Indications for Inducing Abortion and Premature Labor..... 365
- Pregnancy, A Contribution to the Question of True and False Extrauterine..... 509
- Pregnancy, Simultaneous Extra- and Intra-uterine..... 509
- Pregnancies, Two Cases of Recurring Tubal..... 509
- Prentiss, E. L. A Few Suggestions of to the Doctor on the Witness Stand..... 24
- Present Methods of Administering General Anesthetics in the Brooklyn Hospitals with Comments, A Report on. A. F. Erdmann..... 437
- Preventive Medicine, Essay Upon the General Principles of. W. W. Babcock..... 40, 99, 151, 205, 252, 296, 344, 388
- Progress in Anatomy. W. F. Campbell..... 343
- Progress in Dermatology. J. McF. Winfield..... 198, 511
- Progress in Obstetrics and Gynecology. C. Jewett..... 430
- Progress in Obstetrics and Gynecology. C. Jewett and A. Schauf..... 509
- Progress in Ophthalmology. J. W. Ingalls..... 433
- Progress in Otology. J. E. Sheppard and S. H. Lutz..... 200, 432
- Progress in Surgery. G. R. Fowler..... 342, 510
- Prout, J. D..... 247
- Ptois, with the Result of Operation, Report of an Unusual Form of. L. A. W. Alleman..... 90
- Puerperal Psoriasis, A Case of. A. M. Judd..... 66
- Puerperal Toxemia, Report of Case. J. O. Polak..... 470
- Pylorus, Congenital Hypertrophic Stenosis of the. F. W. Shaw..... 211
- Pyosalpinx, Report of Case. W. E. Butler..... 140
- Rabies in New York and Brooklyn..... 248
- Radical Herniotomy of Inguinal Hernie, A New Operative Procedure for..... 511
- Rae, A..... 508
- Rae, A. Head Injuries: Their Diagnoses..... 484
- Rae, A. Sarcoma of Ovary..... 81
- Rae, A. E. Recurrent Appendicitis..... 82
- Rankin, W. H..... 427
- Rankin, W. H. Perforation of the Bowel in Typhoid Fever..... 384
- Ray Bill Fails to Pass the Senate..... 249
- Raymond, J. H..... 93

- Read, H. N. 139, 244
- Read, H. N. The Most Important Manifestation of Rheumatism in Young Children. 289
- Removal of Crochet-Needle from the Bladder Present Two and One-half Years; Report of Case. J. R. Taylor. 141
- Removal of the Middle Third of the Clavicle. A. T. Bristow 290
- Resolution on the Death of Dr. Joseph E. Clark, by the Medical Staff of St. Peter's Hospital. 194
- Retina, A Case of Crypto-Glioma of the. L. A. W. Alleman. 244
- Rheumatism in Young Children, The Most Important Manifestation of. H. N. Read. 289
- Ring Abscess 434
- Rodent Ulcer of the Face. C. F. Buckley. 382
- Rogers, H. E. 545
- Rogers, H. E. The Overindulgence in Fluid as an Etiological Factor in the Production of Stomach Disorders. 67
- Rules and Regulations Governing the Ambulance Service in the Borough of Brooklyn. 160
- Ruptured Dermoid Cyst; Peritonitis; Operation; Recovery. C. Jewett 283
- Ruptured Ectopic Gestation vs. Appendicitis. 431
- Sanitarium Treatment of Tuberculosis, Some Results of the. 512
- Sarcoma of Jaw. W. N. Belcher. 540
- Sarcoma of Kidney, Report of Case. W. L. Duffield. 458
- Sarcoma of the Temporal Bone, A Case of. 200
- Scarlatina. E. E. Lambert. 362
- Schauf, A. Progress in Obstetrics and Gynecology. 509
- Schoenijahn, C. 231
- Schoenijahn, W. C. Treatment of Cholera Infantum. 463
- Schroeder, W. 293, 294, 430, 546
- Schroeder, W. Early History of Medicine in Kings County. 275
- Schroeder, Jr., W. 452
- Scofield, C. E. A Case of Tuberculosis of the Cervical Glands 79
- Shattuck, W. S. A Growth Involving the Left Tonsil, Angle of the Jaw and Pharyngeal Pillars; Probably Carcinoma. 78
- Shattuck, W. S. An Unusual Case of Peritonsillar Abscess. 233
- Shattuck, W. S. Hematoma of Auricle. 137
- Shaw, F. W. Congenital Hypertrophic Stenosis of the Pylorus 211
- Sheppard, J. E. 138
- Sheppard, J. E. A Few Remarks on Some Every-Day Ear Cases 319
- Sheppard, J. E. Progress in Otolaryngology. 200, 432
- Sheppard, J. E. Tuberculosis of Mastoid. 133
- Sherwell, S. 80
- Sherwood, W. A. Perineal Prostatectomy. 240
- Shipley, A. E. 243
- Shipley, A. E. Report on Some Cases of Diphtheria. 493
- Shoop, F. J. 88, 141, 142, 192, 376, 425, 456, 469
- Simmons, W. S. 332
- Skene, W. H. 543
- Skin as a Source of Wound Infection. G. R. Fowler. 315
- Smith, H. M. 422
- Smith, P. M. Perforating Ulcers of Stomach; Carcinoma of Stomach; Diffuse Carcinomatous Infiltration of Stomach; Stomach Corroded by Carbolic Acid Poisoning. 336
- Spence, T. B. Inguinal Hernia with Incarceration of the Vermiform Appendix 383
- Spence, T. B. Strangulated Inguinal Hernia with Apparent Reduction 383
- Sterile Milk and Infant Mortality. 471
- Stiles, C. W. Hookworm Disease (Uncinariasis). A Newly Recognized Factor in American Anemias. 51
- Stivers, J. R. 30
- Stivers, J. R. Prognosis and Treatment of Meningitis. 419
- Stivers, J. R. The Twentieth Century Practice of Medicine. 475
- Stomach, Perforating Ulcers of; Carcinoma of Stomach; Diffuse Carcinomatous Infiltration of Stomach; Stomach Corroded by Carbolic Acid Poisoning. P. M. Smith. 336
- Stomach Disorders, The Overindulgence in Fluid as an Etiological Factor in the Production of. H. E. Rogers. 67
- Stone in a Healthy Kidney. W. C. Wood. 290
- Subclavian Artery from a Fractured Clavicle, Report of a Case of Laceration of. W. E. Butler. 64
- Subpectoral Abscess. R. S. Fowler. 521
- Subperiosteal Resection of Middle Third of Clavicle. A. T. Bristow. 499
- Subperiosteal Resection of the Ulna. A. T. Bristow. 499
- Summer Diarrheas of Infants, Treatment of the. C. LeG. Kerr 368
- Summer Relief and Charitable Organizations, Activity of. 472
- Syphilis, Diagnosis of Primary. G. M. Muren. 124
- Syphilis, Open Air Treatment of. 200
- Talipes-Equinus; Operation; Cure. G. R. Fowler. 532
- Taxation of the Medical Library. 338
- Taylor, J. R. 184, 192
- Taylor, J. R. Report of Case; Removal of Crochet-Needle from the Bladder Present Two and One-half Years. 141
- Tent Hospital Treatment for Consumptives in this City. 248
- Tenement House Improvement 512
- Terry, A. H. The Treatment of Hemorrhoids by Injection. 488
- The Surgical Treatment of Floating Kidney. 343
- Tomes, W. A. 427
- Trachea; Tracheotomy, Foreign Body Removed from. J. A. Lee 460
- Trachoma and Cuproclitrol. 433
- Tubal Pregnancy; Clinically Considered, with a Plea for Its Early Recognition and Radical Treatment. W. B. Chase. 312
- Tubal Pregnancy, Ruptured. W. B. Chase. 87
- Tuberculosis; Excision of the Knee for. J. B. Bogart. 328
- Tuberculosis, Regional. F. E. Lambert. 129
- Tuberculosis of the Cervical Glands, A Case of. C. E. Scofield 79
- Typhoid Fever, Perforation of the Bowel in. W. H. Rankin. 384
- Twentieth Century Practice of Medicine, The. J. R. Stivers. 475
- Twist with Adhesion of Umbilical Cord in Still-Born Fetus. L. G. Langstaff. 469
- Urinary Casts, Notes on. Z. T. Emery. 435
- Urticaria Perstans 511
- Uterine and Rectal Polypi; Report of Cases. H. A. DeForest 138
- Uterine Carcinoma by the Combined Use of Finsen Light and Roentgen Ray, A New Suggestion in the Treatment of. G. G. Hopkins. 517
- Uterine Myomata; with Metastasis. 431
- Uterus, Fibromyoma of. G. Wackerhagen. 382
- Van Cott, J. M. 335
- Ventral Suspension and Ventral Fixation for Prolapse of the Bladder with the Uterus. R. L. Dickinson. 259
- Vertigo 201
- Vesico-Vaginal Fistula as a Complication of Labor. 432
- Wackerhagen, G. Fibromyoma of Uterus. 382
- Wackerhagen, G. Gangrenous Appendicitis. 383
- Waldie, J. L. H. 546
- Warbasse, J. P. 7, 14, 449, 483, 507
- Warbasse, J. P. Memorial Address. 65
- Warbasse, J. P. Some Observations on Perforating Ulcer of the Duodenum. 5
- Warbasse, J. P. Vicious Peritoneal Adhesions of the Duodeno-Hepatic Region. 14
- Waugh, H. H. Report of Hemorrhage Tubercular (?) Polypus of the Conjunctiva. 90
- Webster, H. G. 458, 541
- Westbrook, R. W. 70, 289, 337
- Westbrook, R. W. Cyst of the Pancreas; Operation; Cure. 535
- Westbrook, R. W. Marked Hyperleucocytosis Suggesting Abdominal Suppuration; Recovery Without Operation. 534
- West Virginia State Medical Association. 227
- Wheeler, R. T. 243
- Wheeler, R. T. Tubercular Meningitis. 420
- Wiggin, F. H. 373
- Winderlich, F. W. Perforation of Gall-Bladder into the Duodenum 460
- Winfield, J. MacF. 80
- Winfield, J. MacF. A Brief History of the Therapy of Various Forms of Light and Radio-Therapy. 163
- Winfield, J. MacF. Progress in Dermatology. 511
- Wischerth, J. G. 453
- Wolfian Relics in the Ovary. 430
- Wood, J. S. 247, 284, 286, 338
- Wood, J. S. Case of Congenital Microphthalmos with Coloboma of Iris and Choroid. 90
- Wood, J. S. Report of Case; Panophthalmitis with Orbital Cellulitis 284
- Wood, W. C. 27, 83, 241, 331
- Wood, W. C. Concerning Fistula in Ano. 480
- Wood, W. C. Multiple Tubercular Strictures of the Intestine 506
- Wood, W. C. Persistent Sinus Following Nephrectomy. 507
- Wood, W. C. Stone in a Healthy Kidney. 290
- Woolworth, E. E. 293
- Wright, E. W. 284, 337
- Wunderlich, F. W. Suppurative Appendicitis Complicated with Fecal Fistula. 495
- Zabriskie, J. B. 538
- Zimmerman, V. L. Report of Case; Extra-Uterine Gestation at Full Term; Operation; Death. 544





